88-05429/

The Manitoba Hydro-Electric Board

37th ANNUAL REPORT FOR THE YEAR ENDED MARCH 31, 1988

manitoba hydro

COVER:

Manitoba Hydro is able to harness the province's rivers to produce electricity, ensuring a clean, reliable and economical source of power for Manitobans. A major source of Manitoba's power is the Nelson River, shown here as it passes near Gillam. Manitoba Hydro's Kettle Generating Station is in the background.

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Winnipeg, Manitoba
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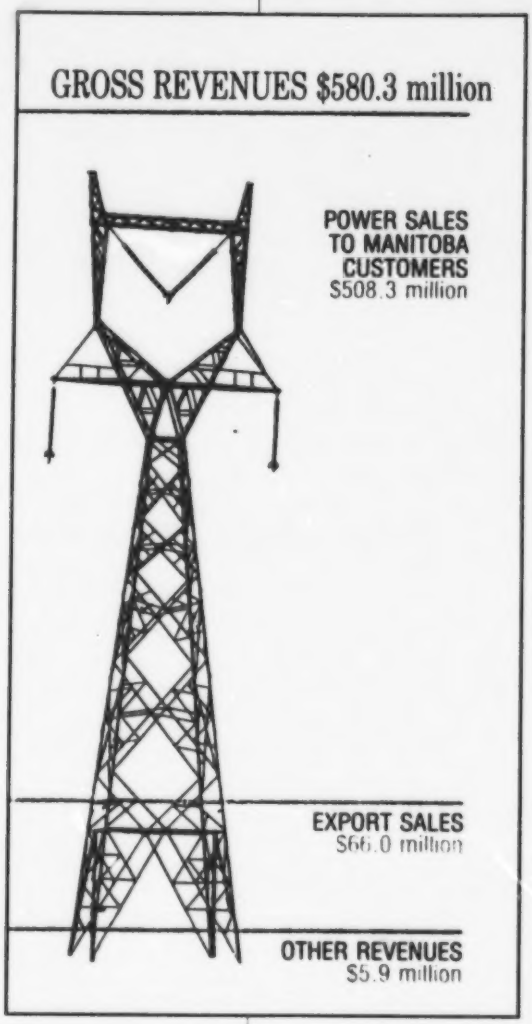
Highlights



FINANCIAL

Gross Revenues:
$580.3 million

Total Expenses:
$598.8 million

Net Expense:
$18.5 million

Extraprovincial Revenues:
$66.0 million

Energy Sales within Manitoba:
$508.3 million

Finance Expense:
$253.4 million

Reserves:
$118.8 million

Additions to Fixed Assets:
$311.0 million

OPERATING

(Integrated System)

Total Generation
(including isolated stations):
18.9 billion kilowatt hours

Manitoba Firm Energy Supplied:
16.3 billion kilowatt hours

Manitoba Peak Load:
3 356 000 kilowatts

(Manitoba Hydro)

Total Hydraulic Generation:
17.3 billion kilowatt hours

Power Sales to Manitoba Customers:
13.6 billion kilowatt hours

Export Sales:
3.4 billion kilowatt hours

Number of Customers:
362 444

Peak Number of Employees:
4 222

OTHER

- substantial progress made on the Limestone project during the year, with the majority of the generating station's concrete now in place — projected cost reduced to $1.67 billion — peak employment levels reached
- 25 per cent drop in hydraulic production due to reduced water flows on river systems, resulting from drought
- new record set for peak load
- Town of Churchill added to central supply of electricity through completion of 270 kilometre transmission line
- sale of firm power made to Ontario Hydro for the period from 1998 to 2003

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manitoba hydro

Letter of Transmittal

July 8, 1988

The Honourable H. Neufeld
Minister responsible for the
Administration of the
Manitoba Hydro Act
Legislative Building
Winnipeg, Manitoba
R3C 0V8

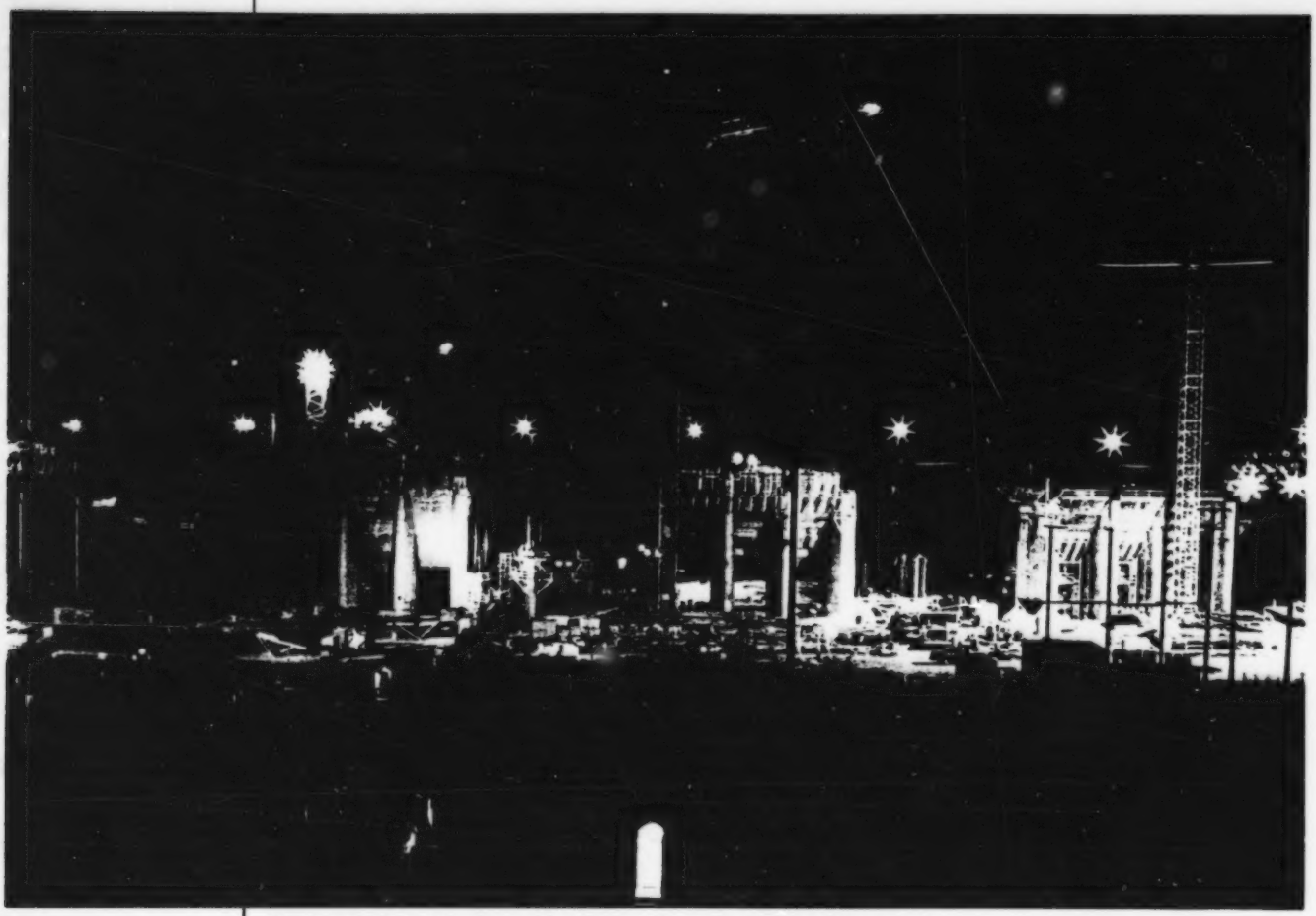
Dear Mr. Minister:

I have the honour of presenting the 37th Annual Report of The Manitoba Hydro-Electric Board together with financial statements for the fiscal year ended March 31, 1988.

Respectfully submitted,

A. Brian Ransom
Chairman
Board of Directors
The Manitoba Hydro-Electric Board

Manitoba Hydro



Limestone by night. Completion of the Limestone Generating Station will mean a net capacity addition of 1 280 000 kilowatts of power to serve the future needs of Manitobans.

Manitoba Hydro was formed in 1961 by an Act of the Manitoba Legislature that united two provincial utilities, the Manitoba Power Commission and The Manitoba Hydro-Electric Board. Manitoba Hydro is responsible for serving all areas of the province except for the central portion of the City of Winnipeg.

The mandate of the Corporation as set out in the Manitoba Hydro Act is "to provide for the continuance of a supply of power adequate for the needs of the province, and to promote economy and efficiency in the generation, distribution, supply and use of power."

The Corporation is administered by a Board of 11 members appointed by the provincial Cabinet. Through its Chairman, the Board reports on the activities of Manitoba Hydro to the Minister responsible for administration of the Manitoba Hydro Act who, in turn, reports to the Manitoba Legislative Assembly. In this manner, Manitoba Hydro is responsible to the people through their elected representatives.

Since 1961, the use of electricity by Manitobans has increased fourfold from less than four billion kilowatt hours to more than 16 billion in 1987-88. During this span, Manitoba Hydro designed and constructed four new hydraulic generating stations in order to meet this growing demand for electricity. In 1961, Manitoba Hydro's generating capability was just over one million kilowatts. Since 1979, when the Long Spruce Generating Station was added to the system, the province's capability has increased to more than four million kilowatts. Through the orderly development of suitable hydroelectric sites in the northern part of the province, Manitobans are assured of reasonably-priced electricity well into the future.

Manitoba Hydro's staff of more than 4 000 work in all areas of the province, sustaining a network of generating stations, transmission and distribution lines and transformer stations. This network delivers a reliable supply of electricity to the homes, farms and workplaces of our 362 000 customers.■

*The Manitoba Hydro-Electric Board**

The Board's 11 members are appointed by the Government of Manitoba to set policies for the Corporation:

A. BRIAN RANSOM
Chairman

JOHN S. McCALLUM
Vice-Chairman
Faculty of Management
University of Manitoba

ROD J. BEAUDRY
Production Division
Manitoba Hydro

WILLIAM E. CHEATER
Regional Services Department
Manitoba Hydro

CHARLES E. CURTIS
Deputy Minister of Finance
Province of Manitoba

HARRY ENNS
M.L.A. - Lakeside

DARLENE HILDEBRAND
Investment Advisor
RBC Dominion Securities

DR. EDMUND KUFFEL
Dean of Engineering
University of Manitoba

CLYDE R. McBAIN
President and General Manager
Ancast Industries Ltd.

KEN PATINO
General Engineering Division
Winnipeg Hydro

DR. HAROLD J. PERKINS
Faculty of Education
Brandon University

The Executive

G.H. (GARRY) BEATTY
President and Chief
Executive Officer

R.M. (MURRAY) FRASER
Senior Vice-President
Energy Supply

R.O. (RALPH) LAMBERT
Senior Vice-President
Customer Service and Marketing

R.B. (BOB) BRENNAN
Vice-President Finance
and Chief Financial Officer

L.M. (LINDA) JOLSON
Vice-President
Corporate Relations

D.A. (DON) KILGOUR
Vice-President
Engineering and Construction

J.F. (JOHN) FUNNELL, Q.C.
General Counsel and
Corporate Secretary

W.A. (ART) DERRY
Vice-President
Business Development

W.J. (WILL) TISHINSKI
Vice-President
Operations

* *Board members during the year under review were: Marc Eliesen, Chairman; Charles E. Curtis, Vice-Chairman; Steven J. Ashton; Rod J. Beaudry; William E. Cheater; Saul M. Cherniack, Q.C.; Jack R. London, Q.C.; Dr. Nora E. Losey; Dr. Edmund Kuffel; Clyde R. McBain; Roy D. Minish.*

President's Message

Through the dedicated efforts of its employees, Manitoba Hydro has come through a difficult year, while maintaining high standards of performance. This has resulted from the sense of responsibility and commitment which our personnel have to the Corporation and to our customers. I extend my thanks to all members of staff and management for their individual contributions to the Corporation in meeting the challenges of the past year.

During 1987-88, Manitoba Hydro encountered drought conditions which seriously reduced the water flows through our hydroelectric generating stations. Hydraulic generation in 1987-88 was down 25 per cent from the record high experienced in the previous year. Export sales for 1987-88 were down by almost 42 per cent or about $47 million compared to 1986-87. The reduced revenue and additional costs attributable to the drought contributed to the net expense of $18.5 million on the year's operations compared to net revenue of $13.4 million for the preceding year.

In the same way that the electrical system has been designed to ensure an adequate supply of electricity for our Manitoba customers even with poor water flows, the Corporation must also manage its financial affairs to protect its customers. The utility is determined to increase its financial reserves as a defense against the cost of drought and other risks, and the current low water conditions certainly underscore the need for an adequate level of reserves. Following three successive years during which the level increased, our reserves were drawn down in 1987-88 to $118.8 million.

Manitoba Hydro appeared before the Public Utilities Board in February 1988 for the first time in a decade. After reviewing all the evidence, the Board concluded that the rate increases implemented from 1986 through 1988 were justified and reasonable. The Board also concurred with Manitoba Hydro's assessment of the need for adequate reserves as a cushion to ensure rate stability and predictability, given the risks of an hydraulic-based operation.

The utility's principal objective is to provide an adequate supply of reliable and low cost energy to its Manitoba customers. Expansion and improvement of the electrical system enables the company to keep up with customer demands for more extensive and reliable service.

Excellent progress was made during the year on construction of the Limestone Generating Station. The station is expected to begin producing power in late 1990 as the project moves forward on schedule. Employment levels at the site peaked during the year and activity will now begin to shift from major civil construction to the installation of electrical and mechanical components.

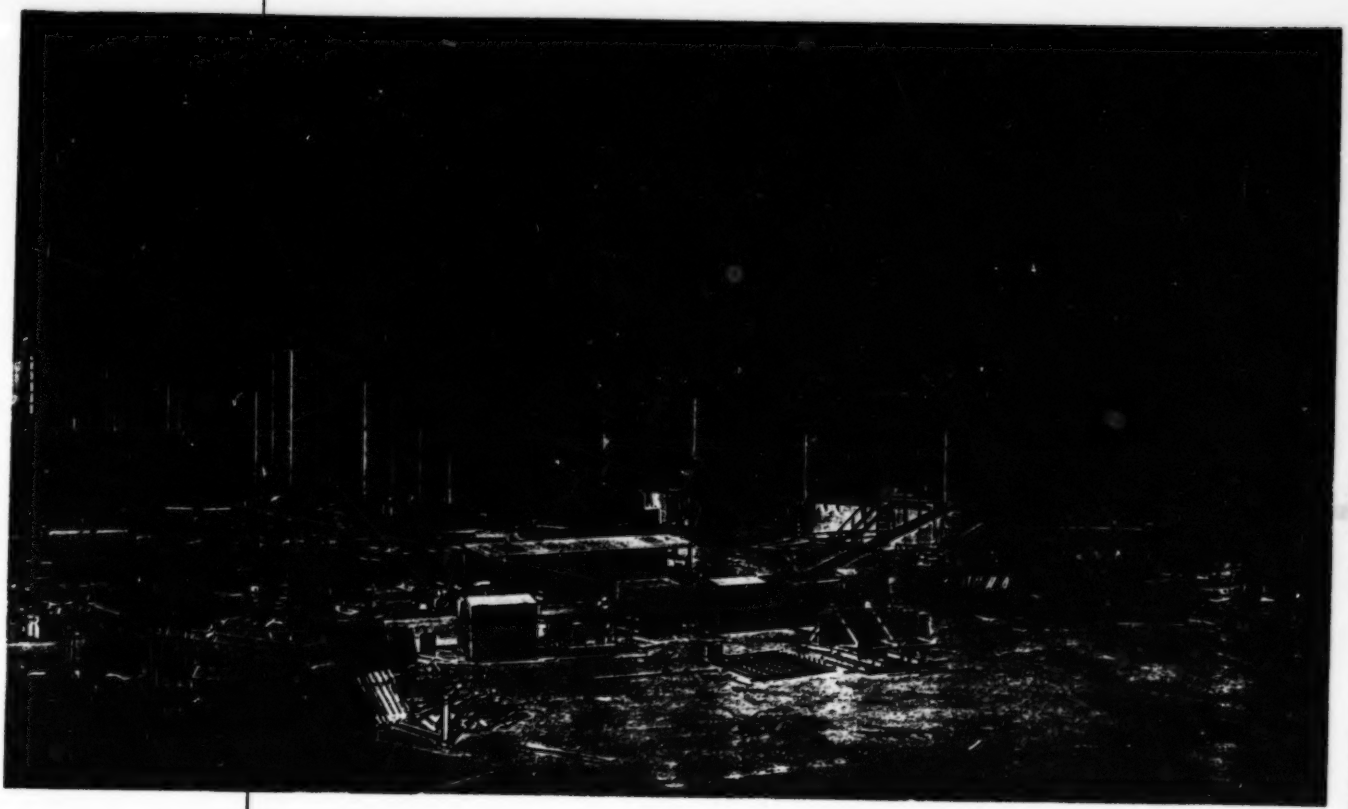
During the year, Manitoba Hydro completed the construction of a major new transmission line to the northern port of Churchill. This connection with the provincial grid has eliminated a dependence on diesel generation to meet the community's electrical requirements. Service is now comparable to that enjoyed in most other parts of Manitoba.

The completed portion of the rural underground distribution program in southern Manitoba is providing greater reliability of supply for customers in areas that are particularly prone to ice storms.

Manitoba Hydro's mandate is "to provide for the continuance of a supply of power adequate for the needs of the province, and to promote economy and efficiency in the generation, distribution, supply and use of power." Building on the existing base, I believe that the Corporation can continue to plan, construct and operate the facilities necessary to ensure the dependable delivery of high quality electrical service to the citizens and businesses of Manitoba. Furthermore, I believe that we can strengthen the financial position of the utility while still supplying power at rates that are among the lowest in North America.■

G.H. Beatty
President and Chief Executive Officer

Limestone



One of the largest construction projects underway in North America, Limestone required the skills of some 1 650 workers last year.

The Limestone Generating Station entered its third year of construction in 1987, a year that saw activity and employment levels at the site reach a peal.

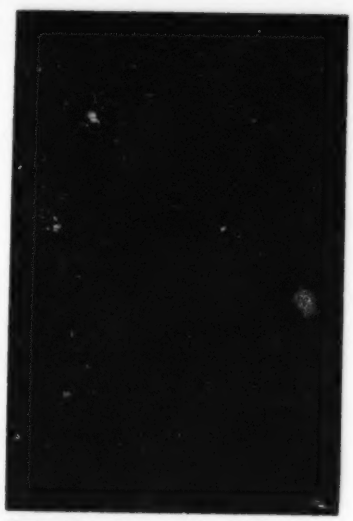
The site of the project, Limestone Rapids, is on the Nelson River, about 750 kilometres by air north of Winnipeg and 260 kilometres south of the Town of Churchill. The Nelson River already powers four Manitoba Hydro generating stations while six other sites have been identified as having the potential to accommodate future hydraulic generating facilities.

Limestone will provide a net capacity addition of 1 280 000 kilowatts of electricity to meet the needs of Manitobans and to fulfill a contract to export power to Northern States Power Company of Minneapolis. During the year, it was announced that the cost estimate of the project had been reduced to $1.67 billion, down from $1.73 billion reported last year. This was the latest in a series of reductions in the projected cost of the station, as Manitoba Hydro benefits from a competitive market for contracts and materials and lower rates of interest and escalation.

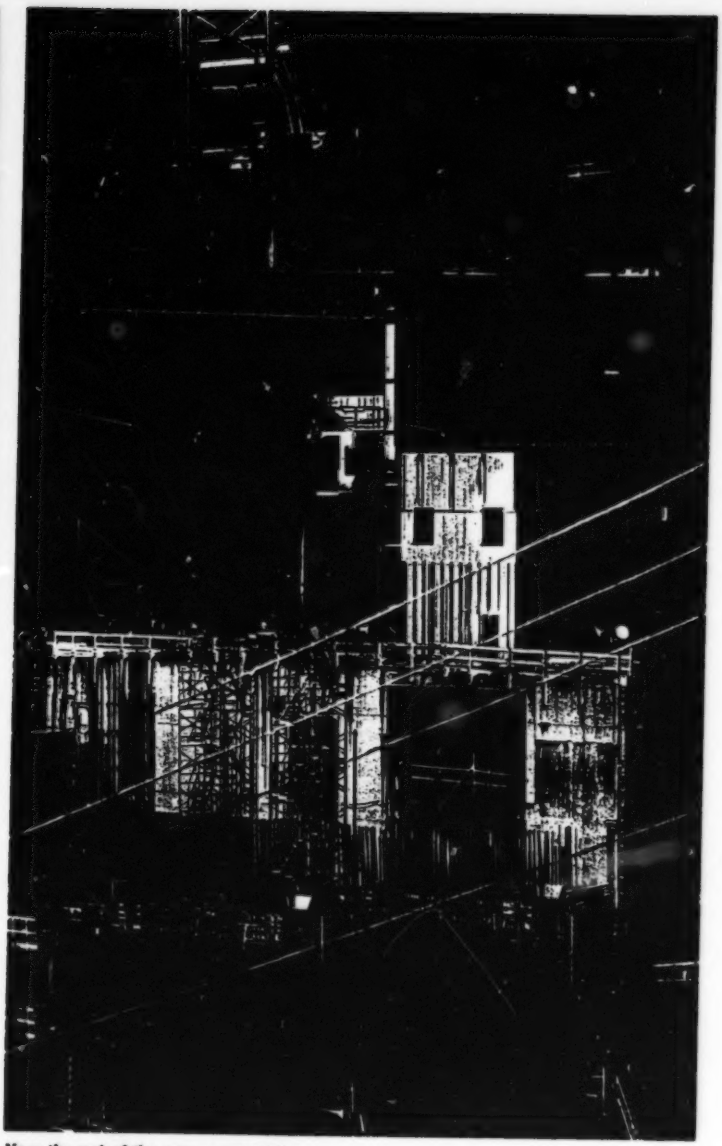
With the first generating units expected to be producing power by the end of 1990, the project is on schedule and the major concrete structures of the generating station are largely in place. The project is scheduled to be completed in 1992.

By the end of the 1987 construction season, Bechtel-Kumagai, the project's general civil contractor, had placed 313 000 cubic metres of concrete, bringing the total to date to 493 000 cubic metres, or approximately 75 per cent of the total project requirement. Bechtel-Kumagai is a consortium of the Toronto-based Canadian subsidiary of the Bechtel Group Inc. of San Francisco and Kumagai-Gumi Ltd. of Tokyo.

During the 1987 construction season, 313 000 cubic metres of concrete were placed, forming structures such as the intake section of the powerhouse.



Part of the spillway section under construction.



Near the end of the year, some of the structural steel and metal cladding of the service bay were in place.

A temporary cofferdam allows for construction of the new generating station in the middle of the Nelson River.

The heavy steel superstructure for the service bay allows for the installation of a large overhead crane.

During 1987, the north dam was completed to its finished height.

Erection of the steel superstructure and cladding for the first four units of the powerhouse, control room and service bay began during the year. Installation of the powerhouse cranes continued during the winter.

Rock excavation for the tailrace and spillway channels is virtually complete, as well as construction of the north dam area, which reached its finished height of 88 metres above sea level. Manufacturing commenced on the generators and turbine components, and continued on the intake and spillway gates and structural steel.

Employment at Limestone peaked at about 1 650 during the summer. Workers live in a modern camp near the construction site or in the nearby townsite of Sundance, which accommodated 200 families during the construction season.

Major contracts awarded during the 1987-88 year include those for the generator circuit breakers, governor systems, generator transformers and installation of mechanical/electrical services. Tender requirements have resulted in significantly higher Manitoba content than in previous projects.

Affirmative action measures contained in the Nelson-Burntwood Collective Agreement, which governs the labour relations aspects of the project, are aimed at ensuring maximum participation for northerners. During the 1987-88 construction season at Limestone, the monthly participation rates for northerners ranged from 30 per cent to 76 per cent, while the participation rates for northern natives ranged from 18 per cent to 41 per cent. The Limestone Training and Employment Agency, funded by the governments of Canada and Manitoba, provided training opportunities for northern residents to enable them to join the workforce on this significant northern undertaking. ■

Limestone is on schedule to begin producing power in 1990; the project will be complete in 1992.

Concrete placement and employment reached a peak for the project during the year.

Customer Service

Manitoba Hydro's Rural Underground Distribution program saw the burial of some 90 kilometres of cable in areas prone to ice storms.

Home CHEC-UP energy advisors are ready to provide customers with information and advice about energy efficiency.

The number of Manitoba Hydro customers increased by 7 630 in 1987-88, up 2 per cent to a total of 362 444. Residential and farm customers totalled 320 435 at March 31, 1988, an increase of 2.2 per cent over last year. Power and general service customers increased by 1.7 per cent to 42 009.

Of the 6 311 new dwellings built in 1987-88 throughout Manitoba Hydro's service area, more than one third were all-electric. There are now almost 94 000 electrically-heated single family residences and apartment units in the Manitoba Hydro service area. About 34 per cent of dwellings served by Manitoba Hydro are electrically heated.

Manitoba Hydro continues its efforts to promote the wise use of energy. Under the CHEC Loan Program, customers can obtain low-interest loans to purchase insulation and other associated energy-saving products. The CHEC program, administered by Manitoba Hydro for the Government of Manitoba, saw 3 167 loans processed for a value of $3.3 million during the year. In the program's 11 years, 40 000 loans have been arranged at a value of $31 million.

In a related program called Home CHEC-UP, which is also funded by the Provincial Government, specially trained Manitoba Hydro energy advisors provide guidance on energy efficiency to Manitoba homeowners. Last year they inspected 4 774 residences to assess the energy efficiency of the homes and to suggest improvements that will save these customers money.

The Corporation has also embarked on programs to test new processes and technologies for the efficient use of electricity in the home, on the farm and for industry. Where electricity is more efficient or practical, its use is being promoted for residential primary heating and for water heating. Research projects on a number of large farms are demonstrating that electric space heating, when used in combination with control equipment, can be very competitive with alternative fuels. The use of demand control units results in lower energy costs for the customer and benefits Manitoba Hydro through decreased demand on the utility's electrical system.

Manitoba Hydro is also exploring new electric technologies for industrial use, where electricity can do the job more efficiently and more economically. Some of these industrial processes include heating, drying heat treatment and smelting. New approaches, such as industrial microwave technology, can provide improvements to many industrial processes.

Manitoba Hydro business staff regularly visit industrial, commercial and agricultural customers to provide advice and assistance on electrical energy matters.

The Regions

While much of the Corporation's attention is devoted to building and maintaining its generation and transmission facilities, Manitoba Hydro always keeps the needs of individual customers uppermost in mind. Whether connecting service, restoring power after an outage or answering a billing enquiry, Manitoba Hydro's staff know that satisfying the customer is the most important thing they do.

To do this effectively over an area of 650 000 square kilometres, Manitoba Hydro's service area is divided into three geographic regions. In serving the customer base, each regional organization is responsible for planning, designing, constructing, operating and maintaining the electrical distribution system in its area.

Eastern Region

With headquarters in Selkirk, Manitoba Hydro's Eastern Region is responsible for some 560 000 square kilometres of territory, including the broad expanse of northern Manitoba. A large portion of the Corporation's major transmission lines, including those delivering 75 per cent of the province's power, run through the region and are maintained by Eastern Region staff. As well, the Region is responsible for the maintenance and operation of the Corporation's 13 diesel generating sites, providing electricity to isolated communities in northern Manitoba.

There are 91 400 customers served by the 446 employees in the region.

In addition to the construction of major new transformer stations at Richer and Jenpeg (see System Development), Regional staff were also involved in upgrading the distribution capability in the Town of Selkirk, and Parkdale. The work involved placing new transformers in operation, improving service to about 1 400 customers in these areas.

Capital expenditures in the region in 1987-88 totalled $15.8 million.

In May 1987 the new Selkirk Service Centre was officially opened. The 2 800 square metre building consolidates several employee groups, accommodating the Selkirk District office, the Interlake Area office and the Construction and Maintenance departments of Eastern Region.

Central Region

Of the three regions, Central Region serves the largest number of customers, approximately 187 700. The Regional staff of 543 are responsible for the south-central area of the province, including the suburban areas of Winnipeg not served by Winnipeg Hydro.

During the past year, a total of $12.7 million in capital expenditures were required to maintain and upgrade the electrical distribution facilities in the region.

A major ongoing program for the region is the Rural Underground Distribution (RUD) program. In areas prone to ice storms that damage overhead distribution lines, Manitoba Hydro is burying lines, in order to improve reliability and limit future damage costs. During the past year, some 63 kilometres of line were buried as part of Central Region's RUD program, now entering the fourth year of a five year plan.

Central Region staff were also involved in the start of construction for a new transmission line from Letellier to St. Leon. The line will reinforce the system presently supplying Letellier, Morden and St. Leon. It will also improve reliability during ice storm and system emergency conditions.

Western Region

Headquartered in Brandon, Manitoba Hydro's Western Region serves 83 300 customers in Manitoba's south-west and Parklands area. Western Region employs 393 staff, located in a number of offices throughout the region.

The Region is also involved in the RUD program to improve system reliability in ice-prone areas. In 1987-88, approximately 29 kilometres of buried cable were placed in service.

Another important ongoing activity in the region is the upgrading of rural distribution facilities, allowing for increased electrical loads on modern farms. During the year, much of this activity took place in the Virden and Cromer areas.

In total, Western Region incurred some $13 million in capital expenditures in 1987-88 to improve service.■

Electrical Production

As a result of drought conditions affecting much of Western Canada, the volume of water flowing in Manitoba's rivers was substantially reduced in 1987-88. The amount of electricity generated from the 13 hydraulic generating stations in the integrated Manitoba system (comprised of Manitoba Hydro and Winnipeg Hydro) was 18 billion kilowatt hours, a reduction of 24.7 per cent from last year's record of 24.0 billion kilowatt hours. The generation from Manitoba Hydro's 11 generating stations was 17.3 billion kilowatt hours, down from 22.9 billion last year.

Due to reduced water flows, production from the generating stations on the Winnipeg River, such as Pine Falls, was down 25 per cent from the previous year.

The total amount of energy generated and purchased during 1987-88 to meet the needs of the integrated Manitoba system and for power sold outside the province was 20 billion kilowatt hours, a decrease of 17.2 per cent from the record 24.2 billion kilowatt hours produced last year.

Hydraulic generating stations produced 90.1 per cent of the total energy supplied, compared to 99.1 per cent the previous year. Thermal generation produced 4.1 per cent compared to 0.4 per cent last year. Energy purchased outside the province rose from less than 0.5 per cent for the 1986-87 fiscal year to 5.8 per cent this year.

The Selkirk Thermal Generating Station was called upon to operate on a full-time basis during the year, helping to compensate for the reduced production from the hydraulic generating stations. The thermal station at Brandon also supplemented the hydraulic supply.

With the exception of Kelsey Generating Station, all stations on the Nelson River generated less power than in the previous year, with generation down to 72.1 per cent of the total requirement, compared to 74.3 per cent last year. Generation from the Winnipeg River plants contributed 12.2 per cent of requirements, the Saskatchewan River 5.6 per cent and the Laurie River plants 0.2 per cent.

Thermal generation totalled 823.5 million kilowatt hours, up 726 per cent from the 99.7 million kilowatt hours generated last year. The Brandon Thermal Generating Station produced 52.2 per cent of the total, Selkirk generated 46.8 per cent and the remainder was produced by Winnipeg Hydro's Amy Street plant.

Imports of electricity during the year amounted to 1.2 billion kilowatt hours, of which 92.7 per cent was from the U.S. The remainder was from Saskatchewan for resale to the U.S. and Ontario as well as for use in Manitoba. Cost of purchases totalled $15.7 million in 1987-88 compared to $1.5 million in the previous year.

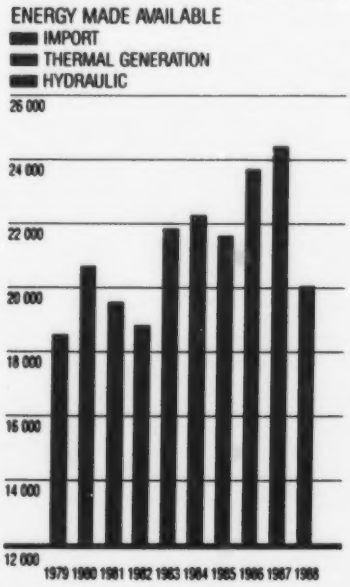
A total of 16.3 billion kilowatt hours of electricity were suppied to meet the needs of Manitoba customers during the year, an increase of 4.9 per cent from the 15.5 billion kilowatt hours required in 1986-87. Increased consumption by power customers contributed to this rise in spite of a continuation of the mild winter weather experienced last year.

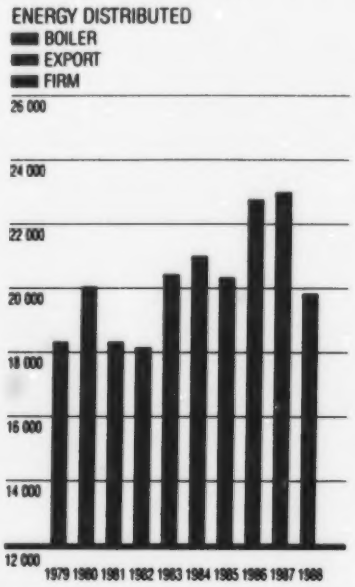
The peak demand for electricity on the Manitoba system occurred on Monday January 4, 1988 at 5:30 p.m., resulting in an all-time high load for Manitoba of 3 356 000 kilowatts. This is an increase of 11.5 per cent over the previous high, recorded last year.

Export sales of electricity were 3.4 billion kilowatt hours, down 56.4 per cent from the record sales of 7.8 billion kilowatt hours in 1986-87. The reduction of exports reflects the reduced availability of surplus hydraulic energy during the year. Sales to the U.S. accounted for 67.6 per cent of exports, Ontario for 29.4 per cent and Saskatchewan for 3 per cent. Revenue from sales of exports totalled $66 million compared to $113.5 million last year.

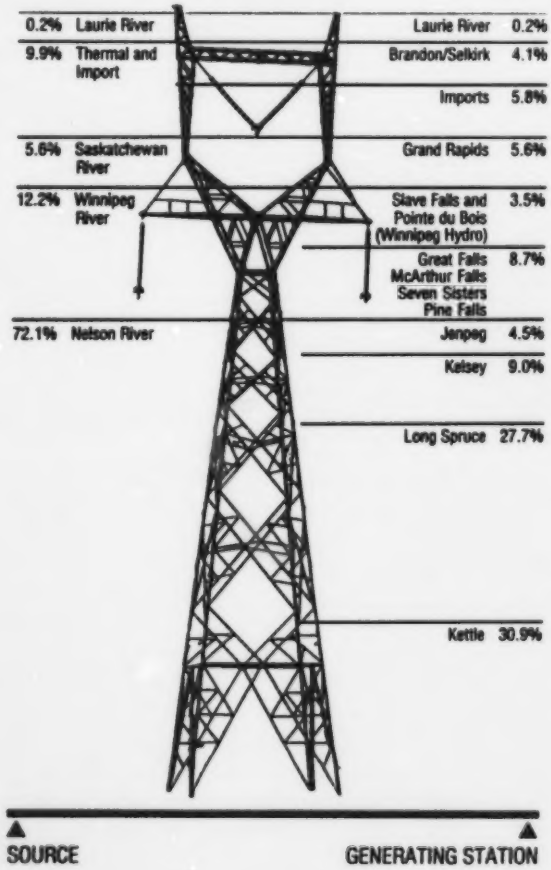
Supply of diesel-generated electricity to communities not connected to the central supply grid totalled 19.6 million kilowatt hours last year, compared to 46.3 million kilowatt hours in 1986-87. The decrease was largely due to the removal from service of the diesel power plant in Churchill when the town was connected to the Manitoba system on April 23, 1987. There were 13 communities supplied by diesel plants in 1987-88 compared to 14 in 1986-87.■

Integrated System 10-Year Comparison • Generation, Purchases and Sales in Millions of Kilowatt Hours for Fiscal Year Ended March 31.

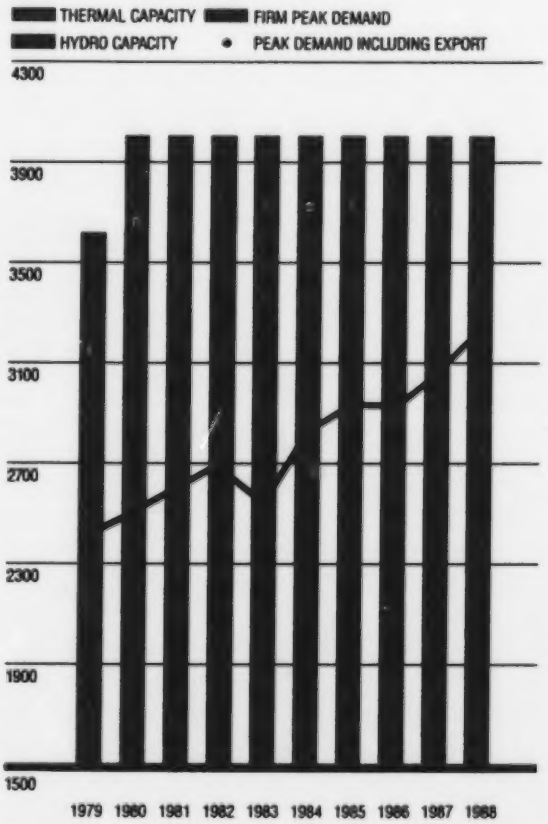




Source of Electrical Energy Generated and Purchased for Fiscal Year Ended March 31.



Integrated System 10-Year Comparison Capacity and Firm Peak Demands in Thousands of Kilowatts for Fiscal Year Ended March 31.



System Development

HVDC System

In September 1987, a $32.6 million contract was awarded to Marine Industries Limited of Montreal for the supply and installation of three synchronous condensers for Dorsey Converter Station, the southern terminus of Manitoba Hydro's High Voltage Direct Current system. The first of these units is to be installed in 1990, to coincide with the first power from Limestone. The industrial benefits to Manitoba resulting from this contract are estimated to be in excess of $19 million.

The total cost of the related improvements and modifications to Dorsey will reach $128 million.

A new transmission line to Churchill was energized during the year. The community had previously been supplied by diesel generation.

Transmission

On Thursday April 23, 1987, a new 138-kilovolt transmission line to Churchill was energized.

The new line allows Churchill residents and businesses access to electrical service from the provincial grid, instead of the more restrictive and costly diesel service. The $35.6 million project was funded under the terms of the 1984 Canada-Manitoba Subsidiary Agreement on Churchill. Manitoba Hydro's share of the cost was $16.3 million.

Also during the year, the Corporation purchased, at a cost of $1.5 million, transmission facilities from Hudson Bay Mining & Smelting Co. Limited (Hudbay). The facilities consist of 142 kilometres of 115-kilovolt wood pole line between Stall Lake and Flin Flon and a switching tower west of the community. The latter connects Manitoba Hydro with the Saskatchewan Power Corporation and Hudbay. The line provides power to the communities of Snow Lake and Sherridon as well as to Hudbay's Stall Lake/Snow Lake and Chisel Lake mine sites. Previously, the line had been leased from the mining company.

Stations

Work continued during the year to expand the capacity of transformer stations serving areas that have experienced growth in the demand for electricity. In October 1987 construction was completed on major new transformer stations at Richer, to serve the Steinbach area, and at Jenpeg, to serve Cross Lake and Norway House.

A major new interconnection was constructed between Manitoba Hydro's St. James substation and Winnipeg Hydro's Sherbrook substation. This project involved the construction of a 3.5 kilometre, 115-kilovolt underground transmission line — the longest such line in Manitoba. Upgrades to the electrical equipment at both substations were also required in order to place this line in service. This new line will increase the capacity and reliability of connections between the two utilities.

Design and construction are underway on a major new station at Cranberry Portage to expand capacity in the area. This project is scheduled to be completed in the fall of 1988.

Five new substations were built and placed in service at Jordan, Oakburn, St. Lazare, Waskada and Winkler.

Maintenance and Rehabilitation

Manitoba Hydro has an ongoing program for the maintenance of its generating and converter stations and its dams and control structures. Such work guarantees the useful life of these facilities and enables them to be operated in the most efficient manner.

Work continued during the year on a 10-year program to rebuild the major electrical and mechanical equipment at the Great Falls and Seven Sisters Generating Stations on the Winnipeg River. In addition, extensive rehabilitation work was completed during the year on Great Falls generating unit number five.

During the year, repairs were also carried out on dykes at the Long Spruce and McArthur Generating Stations.■

Energy Exports

A fundamental characteristic of Manitoba Hydro's hydraulic-based system is that it is designed to meet Manitoba's electricity requirements in low water situations. As a result there may be energy in the form of water that is surplus to Manitoba's needs. This water can be spilled over the dams of the Corporation's generating stations, or the electricity it can generate can be sold to willing buyers outside the province. This interchange of electricity with our neighbours has been a normal part of the utility's operations for years and this capability helps protect all the interconnected utilities in the event of a temporary outage or a shortfall in the local supply.

In most instances, the sale of electricity takes place in the day-to-day marketplace of "interruptible" sales—where the price, quantity and duration are determined daily, on the basis of total supply available and the demand from out-of-province customers. A better price for electricity can be obtained by contracting for the sale of "firm" power—electricity sold under contract at an agreed-upon quantity and price, and under contractual obligations that ensure greater reliability of supply for the purchaser.

During the year, the National Energy Board granted a licence to Manitoba Hydro to export 200 thousand kilowatts of firm power and 700 million kilowatt hours of energy to Northern States Power Company during the summers of 1993 to 1996.

In the 1987-88 fiscal year, the Manitoba Energy Authority, in conjunction with Manitoba Hydro, was active in negotiations with electric utilities in Canada and the United States.

In August 1987 an agreement was signed with Ontario Hydro to supply 200 thousand kilowatts of firm power and 5.6 billion kilowatt hours of energy to be delivered over a five year period from October 1998 to November 2003.

In November 1987 a seasonal diversity exchange agreement for 200 thousand kilowatts of capacity and 175 million kilowatt hours of energy each year was signed with Northern States Power Company for the period from November 1996 to October 2016. The power will be exported from Manitoba in the summer and may be returned in the winter months.

Negotiations continued with a collection of U.S. utilities known as the Upper Mississippi Power Group for a three-part arrangement involving a sale of firm power, a seasonal diversity exchange and construction of a new high voltage transmission line to the United States.

Discussions continued with Ontario Hydro for a short-term sale of surplus hydraulic energy and an increase in the size and duration of the sale which begins in 1998. ■

Based on the availability of supply and the demand from neighbouring utilities, surplus energy sales are negotiated by staff in Manitoba Hydro's System Control Centre.

Research and Development

Manitoba Hydro has a long-standing commitment to research and development projects that may enhance the design, construction or operation of the province's power system. In 1987-88, the Corporation was involved in a number of research and development projects, many in conjunction with other organizations, including the Manitoba HVDC Research Centre, the Industrial Applications of Microelectronics Centre, the University of Manitoba and the Canadian Electrical Association.

A major research and development project undertaken during the year explores the benefits of post-tensioning techniques in the construction of hydraulic generating stations. Post-tensioning involves embedding conduits in the concrete. After the concrete has developed sufficient strength, high-strength steel tendons are then inserted through the conduit and tensioned. This technique allows a reduction in the normal amount of reinforcing steel used in the concrete and it may also lead to reduced quantities of concrete, all of which, it is hoped, will provide increased economy in the construction of hydroelectric generating stations. Funded by the Canadian Electrical Association and Manitoba Hydro, the study is being undertaken by Manitoba Hydro staff in association with local consulting engineers, Crippen Acres Wardrop.■

Safety

Manitoba Hydro has developed a safety demonstration unit which addresses safety on the farm. The display appears at summer fairs throughout Manitoba.

For the 24th consecutive year, Manitoba Hydro's safety record ranked among the top three of 14 major Canadian electrical utilities.

In the calendar year 1987, Manitoba Hydro was third in the "entire operations" category, combining normal electrical utility operations and heavy construction. The number of disabling injuries per million hours worked was 8.2, an increase from 7.5 the previous year.

For 1987, the Corporation's vehicle driving record was third best among the 14 major utilities in Canada. The frequency rate for the Corporate fleet was 2.6 preventable accidents per million kilometres driven.

As a result of an active fire prevention and protection program, losses to Corporate property due to fire were among the lowest on record.

Bringing customers information about electrical safety is an ongoing responsibility of Manitoba Hydro. A safety demonstration unit, addressing safety on the farm and featuring a full-size grain auger, was designed and built by Manitoba Hydro and appeared at a number of community fairs, attracting widespread interest.

Health education programs for employees continued during the year. A program of "No smoking in the workplace except in designated areas", now entering its third year, continues to be highly successful. In compliance with Provincial regulations, more than 2 000 workers who are or have been subjected to high noise levels are being provided with a hearing conservation education program, as well as audiometric testing.■

Taking Care of PCBs

Polychlorinated biphenyls (PCBs) are environmentally persistent substances which are difficult to destroy. While the toxicity of PCBs is in question, by law any fluid containing PCB levels of 50 parts per million or more is deemed to be a risk to the environment. Manitoba Hydro is a leader among Canadian utilities in taking a comprehensive approach to identifying, treating, and, when necessary, storing PCB-contaminated materials.

Manitoba Hydro's program of removing PCBs from contaminated insulating oil continued in 1987. Special equipment used by the Corporation chemically destroys the PCB content and leaves the insulating oil clean and reusable. During the year, 1 398 436 litres of PCB-contaminated oil were processed. This included 43 523 litres processed for customers on a contract basis.

A new building for storing PCB-contaminated material has been built at the Corporation's Waverley Service Centre in Winnipeg. Specially designed to accommodate the storage of PCB-contaminated solids and liquids (including electrical equipment, dirt and cleanup rags), the building will meet storage requirements for the next 15 years or until disposal facilities become available. While built primarily to handle Manitoba Hydro's needs, the building will also store material on behalf of the provincial government, as part of Manitoba Hydro's continuing commitment to the safe management of PCBs in the province. ■

Affirmative Action

Manitoba Hydro recognizes the importance of equitable human resource management practices, both in hiring and in the treatment of its existing workforce. The Corporation continues to ensure that women, persons of native ancestry and the physically disabled have fair access to employment and developmental opportunities. This year, Manitoba Hydro extended this commitment to include members of visible minorities, in order to correct under-representation of this target group in most occupational groupings within the Corporation.

By year-end, approximately 700 women were employed within the Corporation, 17 per cent of the workforce. Of particular significance was their increased representation in the engineering and related support areas, given the non-traditional nature of this type of work. For persons of native ancestry, representation continued to increase to approximately 150, with the largest number being employed in operating and construction. In this, the largest job category, six per cent representation was achieved, doubling the participation rate since the program began.

Education and development assistance continued this year as new programs were introduced. More high school students were provided with important decision-making information concerning Manitoba Hydro's entry level employment opportunities and qualification requirements, as Career Days presentations were extended to northern communities.

The annual Affirmative Action Scholarships, designed to aid outstanding target group students entering Engineering, Computer Science and related technological fields, were awarded to one physically disabled person, two natives and eight women. The Career Development program, in cooperation with several host departments, provided the opportunity for ten employees to develop skills and knowledge in areas of storekeeping, business, administration, accounting and engineering support through a combination of on-the-job training and seminar participation.

As well, awareness was raised and interest gauged in the trades and technical areas by means of a Career Exploration Day held at both the Western Region and Head Offices. This event allowed employees, particularly women, to obtain more information about non-traditional jobs within the Corporation, which customarily they have not entered. ■

Pay Equity

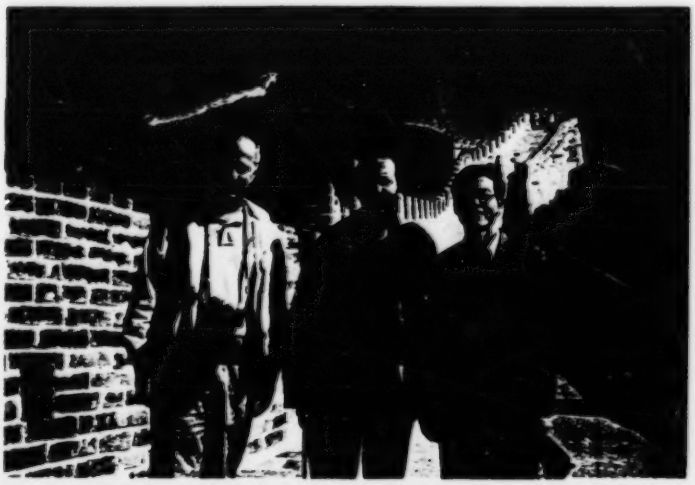
The implementation of the Pay Equity Act in Manitoba Hydro is progressing according to the schedule outlined in the legislation. The Act came into effect on October 1, 1986 for all Crown entities and requires the employer, through a negotiation process, to adjust its compensation practices so that the rates of pay for its female dominated classes of employees are equal to the average rate of pay of its male dominated classes performing work of equal or comparable value.

Discussions with the affected employee groups—the International Brotherhood of Electrical Workers, Local 2034; the Canadian Union of Public Employees, Local 998; the Association of Manitoba Hydro Staff and Supervisory Employees; and the Manitoba Hydro Professional Engineers Association—have resulted in agreement on a jointly-developed gender-neutral job evaluation system.

Agreement has also been reached on identifying the female and male dominated classes and the representative jobs to be evaluated for comparison purposes. Questionnaires gathering data on all representative jobs have been completed by incumbents and the job evaluations are being completed by a joint committee comprised of representatives from all groups concerned.

It is expected that the requirements of the Act will be completed within the legislated time frame. ■

Marketing the Skills of Employees



Two Manitoba Hydro employees pose with their Chinese guide at the Great Wall of China. These employees participated in a seminar on High Voltage Direct Current (HVDC) technology for Chinese engineers.

Other areas of the world are looking for outside expertise to help them improve and expand their electrical generation, transmission and distribution systems. Along with other Canadian electrical utilities and suppliers, Manitoba Hydro is making available the technical and management skills of its employees to potential customers around the world.

Manitoba Hydro sells consulting and training services either directly or in collaboration with other Canadian utilities, private consulting firms, manufacturers and universities. Services are sold on the basis of recovery of direct costs plus a margin for overhead and profit. Total revenue for the year exceeded direct costs by $108 391. Manitoba Hydro not only sends staff outside the province, but also hosts missions from other countries who want to undertake their training in Manitoba.

In 1987-88, Manitoba Hydro was involved in the following projects:

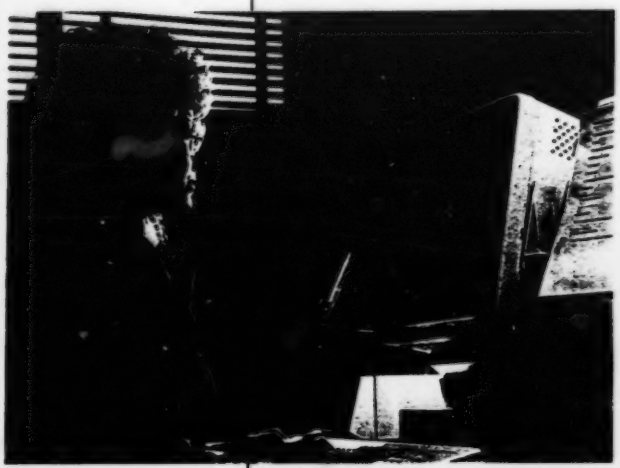
China: Manitoba Hydro is one of five Canadian utilities, led by B.C. Hydro, that is delivering a technical assistance program to the People's Republic of China.

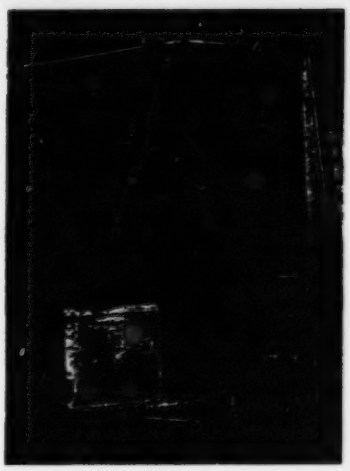
China: A consortium comprised of Manitoba Hydro, Teshmont Consultants Inc. of Manitoba, Monenco Consultants and Ontario Hydro, calling themselves Canada China Electric Power Consultants, was formed in 1986 to seek power utility consulting contracts in China. Its first contract, with the Canadian International Development Agency (CIDA), to provide consulting and training services to the South China Power Studies Project, was awarded in December 1986. This contract is worth $5.9 million to Canada, of which $2.25 million will come to Manitoba.

Egypt: Manitoba Hydro is a subcontractor to Ontario Hydro on a five-year project. Manitoba Hydro has supplied two of its staff to the Egypt Electricity Authority for up to three years to train instructors for a transmission training school in Cairo.

India: Manitoba Hydro has two direct contracts with Indian firms to supply training services in the operation and maintenance of high voltage direct current transmission systems. The first contract involved training six engineers for 10 weeks and was completed in June 1987. The second contract involves training four groups of four engineers for eight weeks each. This contract is expected to be completed by the end of 1988. ■

Employees





*E*mployment within Manitoba Hydro reached a peak of 4 222 in August 1987, compared with a peak of 4 142 employees in August 1986. A total of 64 employees retired during the year. Four employees completed 40 years of service and 26 attained the 35-year mark. A further 79 employees received 25-year recognition pins while 128 were presented with 15-year pins.

During the fiscal year, the Corporation began negotiations to renew collective agreements with all three bargaining units. Tentative agreement was reached between the Corporation and the Association of Manitoba Hydro Staff and Supervisory Employees (AMHSSE) for a new three-year agreement effective March 30, 1988. Negotiations were in progress for renewal of the collective agreement between the Corporation and the Canadian Union of Public Employees (CUPE), Local 998, which expired on December 23, 1987. Negotiations were also underway with the International Brotherhood of Electrical Workers (IBEW), Local 2034 for renewal of the collective agreement which expires May 25, 1988.

Manitoba Hydro retains its strong commitment to providing training opportunities and encouraging further education for its employees.

During 1987-88, a significant number of employees were involved in in-house training programs, participated in professional and technical seminars conducted outside the Corporation and took advantage of the tuition rebate program. ■

Mitigation

*M*anitoba Hydro continues its policy of ensuring that all who are adversely affected by its construction projects are dealt with fairly through mitigation and compensation programs.

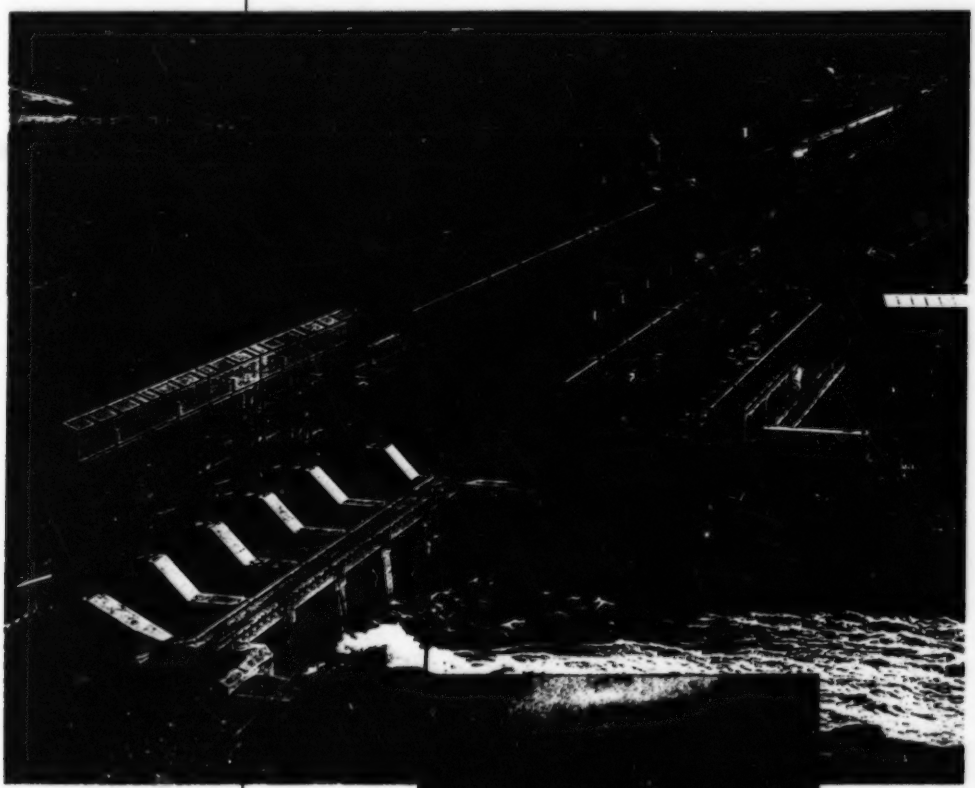
The Lake Winnipeg Regulation and Churchill River Diversion projects, undertaken in the early seventies, have had an impact on local residents. In total, Manitoba Hydro has provided $67.9 million in compensation and remedial measures since the projects' inception to ameliorate loss or damage incurred because of the projects.

A significant portion of the total expenditure (approximately $36.6 million) has been directed to five Indian Bands which have experienced changes to their environment as a consequence of the projects. The Government of Canada, the Province of Manitoba, Manitoba Hydro and the five Bands signed the Northern Flood Agreement in December 1977 to create a forum for discussion on the cause and extent of adverse effects and to facilitate agreement for an appropriate mitigation program. When substantive disagreement exists, parties can seek resolution through an arbitrator.

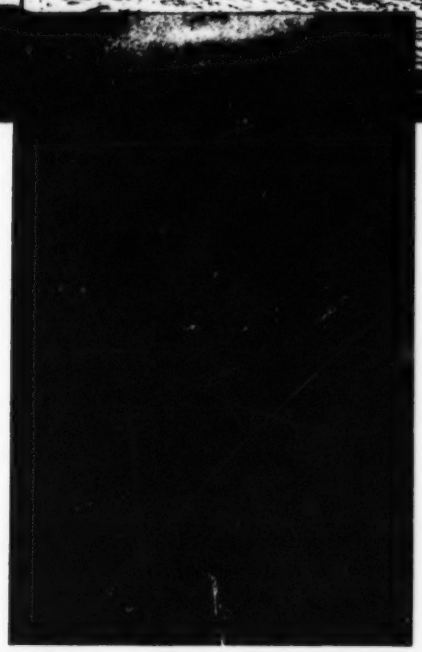
Since 1979, Manitoba Hydro has processed over 2 430 claims from individuals, with 2 199 settled to the claimant's satisfaction. Approximately 92 of the individual claims have been rejected outright, with the remainder still under review.

In addition, the Bands have filed 147 claims with the arbitrator, of which 135 involve Manitoba Hydro. Seventy-three of the claims have been settled or discontinued, with the majority being settled outside the arbitration forum. The balance of the claims are active and under negotiation. ■

Water: the driving force



The Jenpeg Generating Station acts as a control structure at the north end of Lake Winnipeg to allow storage of water on the lake for hydro-electric purposes.



Water flows on the Winnipeg River were the lowest since 1940-41.

Manitobans have been able to consider themselves fortunate when it comes to obtaining their electricity. The province happens to contain the Nelson and Churchill Rivers, the final routes to the sea for vast watersheds that drain more than 1 280 000 square kilometres of North America. The volume of water flowing down a number of Manitoba's rivers makes them suitable for the development of hydroelectric generating stations.

While some Canadian provinces have had to rely on coal-burning thermal plants or nuclear generating facilities (or often a combination of coal, nuclear and hydraulic), Manitoba obtains virtually all the electricity it requires from turbines turned by water—a clean, renewable source of energy.

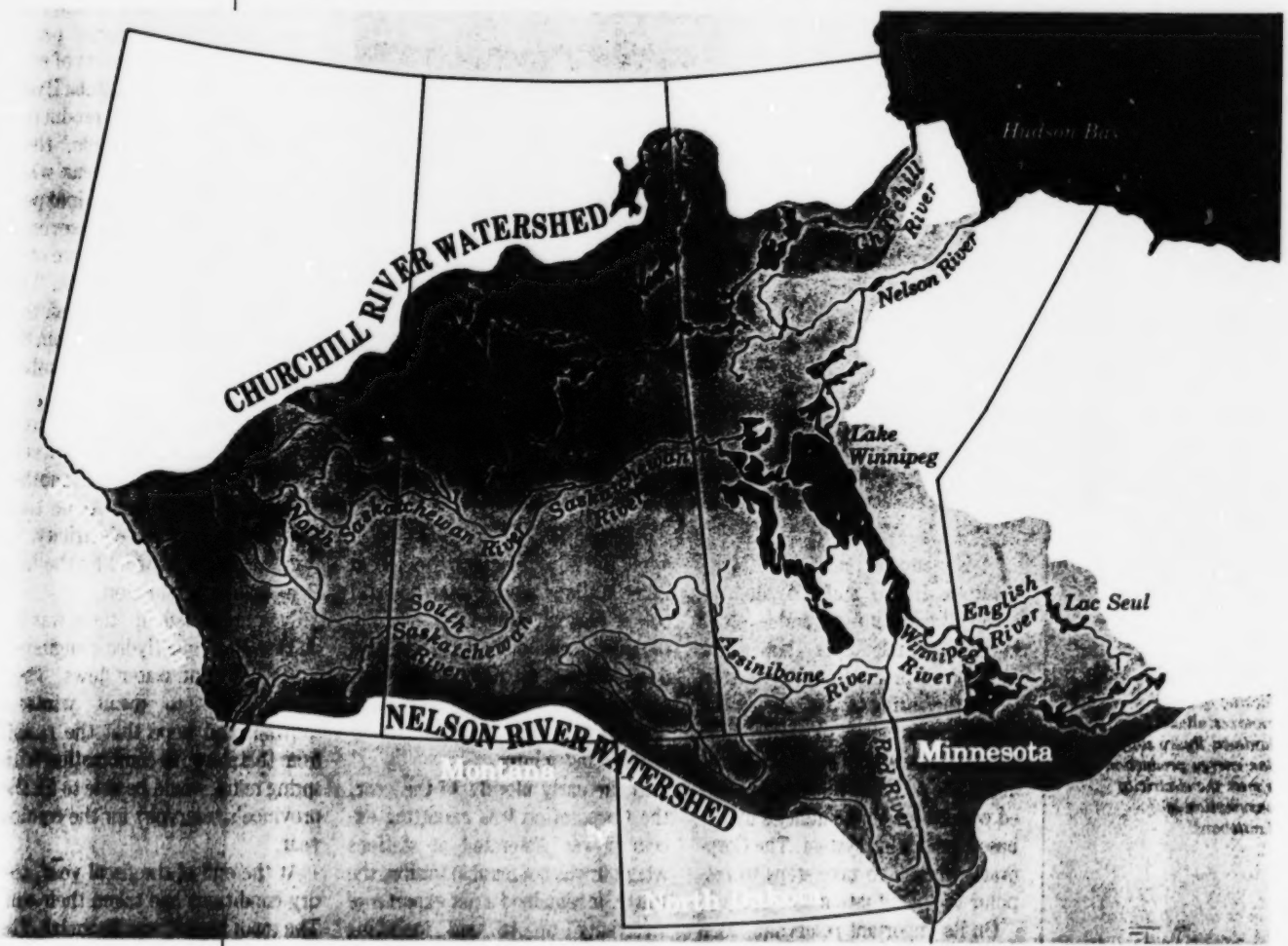
In a normal year, Manitoba Hydro generates at least 95 per cent of its power from its hydraulic generating stations.

Few gifts come so neatly wrapped, however, and Manitobans had to conquer the normal rhythm of nature in order to maximize this resource. The natural high flows for rivers occur in spring and summer, while the peak demand for electricity in Manitoba is over the winter. To resolve this seasonal disparity between supply and demand, control dams were built to regulate the flows out of Lake Winnipeg, Cedar Lake and Southern Indian Lake so that the lakes act as reservoirs for hydro purposes. By this means, some of the precipitation can be captured and stored for release in the winter months when it is most needed to produce power.

But what happens when the normal precipitation does not occur and the water flows on Manitoba's rivers are greatly reduced over an extended period?

Manitoba Hydro's system has been designed to generate sufficient electricity from the lowest water flows on record. This means that anytime there is more than minimum flow

The Watersheds of the Nelson and Churchill Rivers



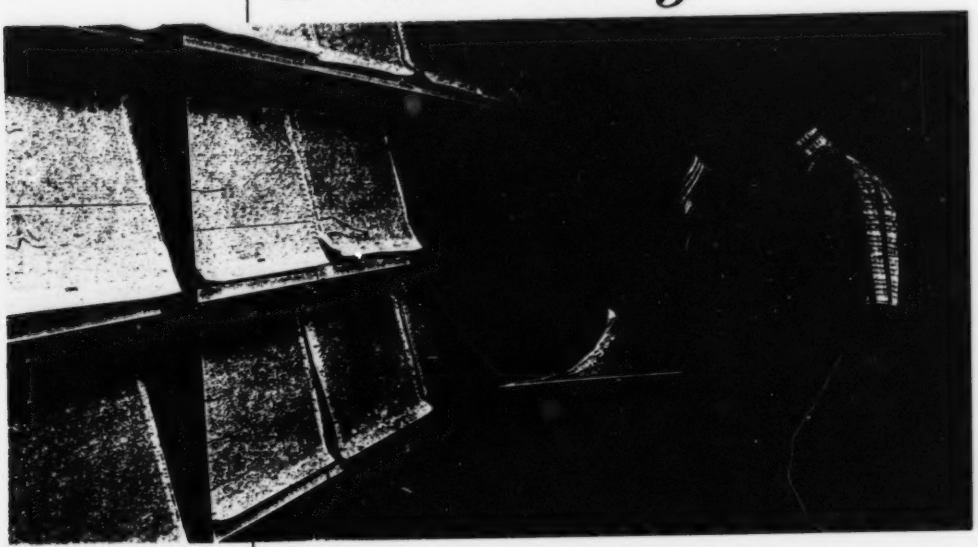
there is sufficient excess capacity for Manitoba to export power to neighbouring utilities. In a year of drought, however, Manitoba Hydro's hydraulic stations operate at reduced capacity — they are able to meet most of Manitoba's requirements but the amount of excess electricity normally available for export is greatly reduced.

While Manitoba Hydro can meet most of the electricity needs of Manitobans through hydraulic generation, in a dry year the utility needs additional energy from coal-burning thermal stations in Brandon and Selkirk and through interconnections with neighbouring utilities. The same interconnections that allow the Corporation to export surplus power become very important resources to enable Manitoba Hydro to import energy when a drought strikes. In this regard, it has contracts with two U.S. utilities that guarantee the availability of up to 1.5 billion kilowatt hours of electricity to Manitoba in conditions of drought.

Managing water flows for power purposes takes careful planning. For example, when changing the outflows from Lake Winnipeg and Southern Indian Lake through Hydro's control structures, it takes four weeks for the effects to be felt on the generating stations on the lower Nelson River. Making such decisions a month in advance requires careful study of the weather outlook and the projected electricity requirements of Manitobans.

Manitoba's reliance on clean, cost-effective hydro power also means that its ability to produce power is subject to variation depending on the amount of precipitation that falls in its watershed area. By ensuring that an adequate margin of capacity exists in its generating facilities, by obtaining suitable energy exchange arrangements with its neighbouring utilities, and by carefully managing its water resources, Manitoba Hydro is able to ensure that under almost any circumstances, Manitobans have a constant supply of electricity.■

Water Management: a case study



Personnel from Manitoba Hydro's Reservoir and Energy Resources section review charts that plot the water levels of lakes and rivers affecting power production in Manitoba. The careful tracking of water resources allows Manitoba Hydro staff to plan energy production to meet the electricity consumption of Manitobans.

It is standard practice for Manitoba Hydro staff to monitor closely the water flows and levels of key rivers and lakes that affect Manitoba's production of electricity. In the spring of 1987, when the normal rains failed to materialize, concern grew within Manitoba Hydro about the potential impact of reduced water flows on the utility's hydro-based generating system. The Corporation began to take steps to respond to the situation.

On its important reservoirs, such as Lake Winnipeg and Southern Indian Lake, Manitoba Hydro kept an ongoing watch on the inflows and used its control structures to slow the outflow. As the dry weather continued over the summer, the utility worked with other provincial and interprovincial agencies to maximize the benefits from the water resources in the various watersheds.

In May, the thermal generating units in Brandon were brought on stream, followed later by the units at Selkirk. These coal-burning generating units were kept in operation for the balance of the year, moving from their role as standby sources of power to front-line producers of electricity.

The flows on the Winnipeg River were particularly low (they turned out to be the lowest since 1940-41), while the flows reaching the Nelson River stations were better but still below normal. Whenever possible the Corporation began to reduce production even further on the Winnipeg River stations, in order to build up an adequate supply of water for the coming winter.

In the early months of the year, the Corporation was exporting excess power generated at stations where it was not feasible to store the water. It remained a net exporter of electricity up to and including December 1987. Between January and March of 1988, it was a net importer of power.

During 1987, the inflows to Lake Winnipeg were down about 50 per cent from the previous year. By using its control structures on the lake, Manitoba Hydro maintained the water at a level higher than would normally have been the case had the lake been in its natural, uncontrolled state. This precaution was taken to guard against the possibility of a continuation of the drought conditions into 1988.

In the 1987-88 year, total hydraulic generation was down almost 25 per cent from the previous year.

In 1987-88, Manitoba Hydro exported electricity worth $66 million, while importing $15.7 million worth of power. Some of the imported power was simply sold to other adjacent utilities for a modest profit. At other times, the imports of electricity were used by Manitoba Hydro to replace or supplement production in Manitoba. For example, there were times during the year when Manitoba Hydro imported inexpensive power overnight and severely reduced production from some of its hydraulic generating stations. This was a simple economic decision that allowed the Corporation to retain the water in its reservoirs to meet subsequent demand.

In total, consumption of electricity in Manitoba was up 5.0 per cent in 1987-88, in spite of another relatively mild winter. At no time was the supply of electricity to Manitobans jeopardized by the lack of hydraulic production.

By winter freeze-up, there was little that Manitoba Hydro's engineers could do about water flows. They would have to await winter's snowfall and hope that the runoff from this snow, in combination with spring rains, would be able to fill the province's reservoirs for the coming year.

At the end of the fiscal year, the dry conditions had taken their toll. The main impact was financial. The reduction in export revenue, along with increased operating costs for electricity imports and for fuel for the thermal stations contributed to a net expense for the year of $18.5 million, which reduced the Corporation's reserves.

If the weather pattern is sustained over the coming year resulting in continued low water flows, a reduction of export revenues and an increase in costs, the financial impact to the Corporation could be in excess of $100 million, enough to virtually eliminate Manitoba Hydro's reserves. Needless to say, Manitoba Hydro is hoping for a suitably wet 1988. ■

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37th Annual Report

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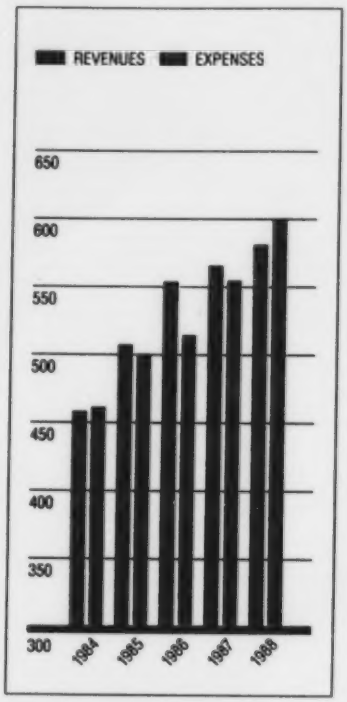
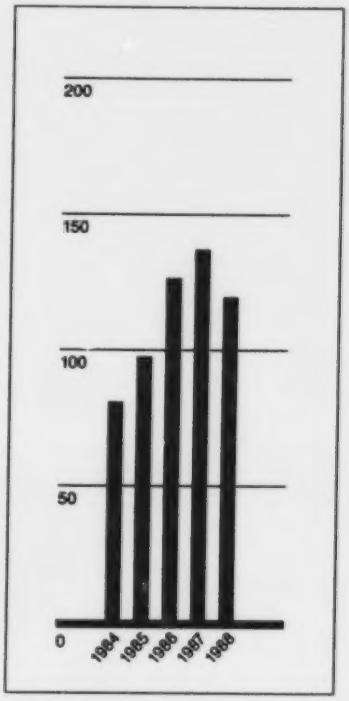
FINANCIAL REVIEW

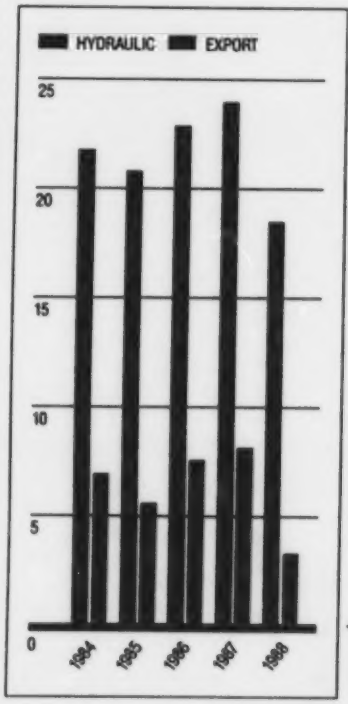
Operations for the 1987-88 fiscal year resulted in a net expense of $18.5 million compared to a net income of $13.4 million in 1986-87. This change is due primarily to low water flow conditions. The net expense follows three consecutive years during which Corporate revenues exceeded expenses and total reserves increased to $137.3 million. This year's experience stresses the importance of maintaining adequate financial reserves to protect Manitoba customers against the risks associated with low water flow conditions. In spite of the reduction in total reserves from $137.3 million to $118.8 million in 1987-88, and barring unforeseen circumstances, the Corporation remains committed to attaining minimum targeted reserve levels through rate increases that are closely aligned with the rate of inflation.



▲ REVENUES vs EXPENSES
(in millions of dollars)



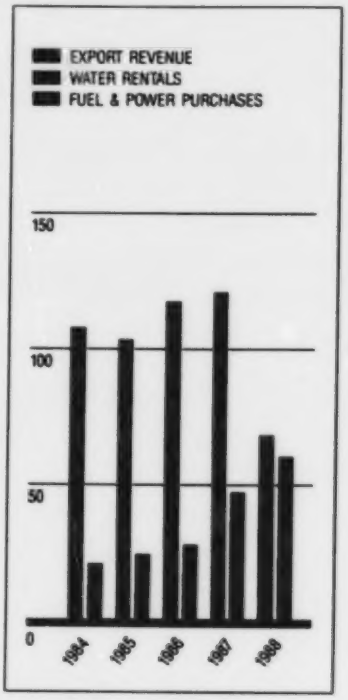
▲ RESERVE LEVELS
(in millions of dollars)



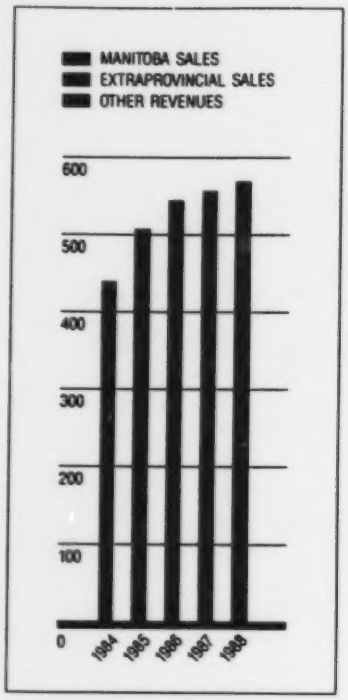
◄ HYDRAULIC GENERATION vs
EXPORT SALES
(in billions of kW.h)

Because of the hydraulic nature of the Manitoba Hydro system, the primary risk to which the Corporation is most vulnerable is that of drought with its attendant impact on the utility's financial position. During the 1987-88 fiscal year low water levels occurred in most of the major drainage basins. As a result of these conditions, total generation from the integrated system decreased from 24.1 billion kilowatt hours to 18.9 billion kilowatt hours. Hydraulic generation decreased from 24.0 billion kilowatt hours to 18.0 billion kilowatt hours. The decreased hydraulic generation in 1987-88 reduced the amount of surplus power available for export and increased thermal generation and energy purchase costs.

With the April 1, 1987 amendments to the Energy Rate Stabilization Act, Manitoba Hydro assumed responsibility for foreign exchange costs on all existing United States denominated debt and on all foreign borrowings transacted on or after April 1, 1987. This has resulted in an increase in finance expense in 1987-88. To mitigate the impact of the increased costs, The Province of Manitoba reduced water rental fees and implemented a special 4.7% average increase in general consumers rates.



▲ EXPORT REVENUE vs GENERATION COSTS (in millions of dollars)



▲ SOURCES OF REVENUES (in millions of dollars)

Revenues increased by $10.6 million or 1.9% to $580.3 million. The increase reflects the effects of load growth and the impact of the rate increases implemented April 1, 1987. These were almost totally offset by a reduction in extraprovincial sales.

Expenses increased $42.6 million or 7.7% to $598.8 million mainly due to power purchases and fuel costs for thermal generation associated with the low water flow conditions, and the amendment to the Energy Rate Stabilization Act.

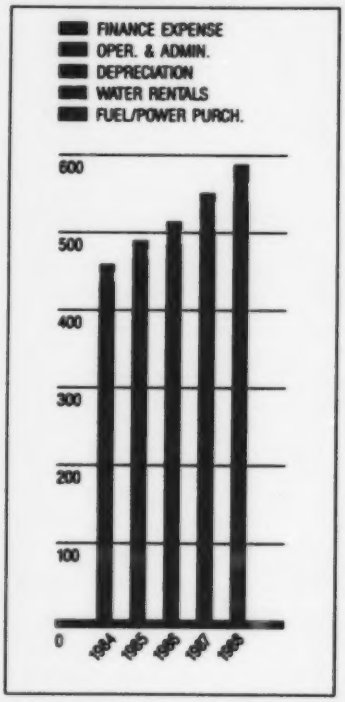
REVENUES

Sale of Power — Manitoba

Electricity sold to Manitoba Hydro general consumers increased from 11.7 billion kilowatt hours in 1986-87 to 11.9 billion kilowatt hours in 1987-88. The mild weather conditions experienced in 1987-88 were comparable to 1986-87 and load growth was limited to 2.0% with the largest increase occurring in the Power sector. Additional electricity was also supplied to Winnipeg Hydro where low water flow conditions curtailed hydraulic generation from its system. The growth in provincial consumption, combined with the April 1, 1987 implementation of the 5% general rate increase and the 4.7% special rate increase in respect of the Energy Rate Stabilization Act amendment, increased general consumers revenue to $464.6 million. This, combined with revenue of $43.7 million under the terms of the cost sharing agreement with Winnipeg Hydro, resulted in total revenue from Manitoba customers of $508.3 million, an increase of 13.1% over 1986-87.

Sale of Power — Extraprovincial

The quantity of energy available for sales to utilities outside the province is highly dependent on hydraulic generation. With the low water flow conditions experienced in 1987-88, hydraulic generation from the integrated system was only 75% of the 1986-87 record total. The reduction in the amount of energy surplus to the requirements of Manitoba customers resulted in a 56% decrease in extraprovincial sales from 7.8 billion kilowatt hours to 3.4 billion kilowatt hours in 1987-88. Extraprovincial revenue decreased from a record $113.5 million in 1986-87 to $66.0 million in 1987-88, however the average return per kilowatt hour increased from 14.5 mills to 20.3 mills reflecting the reduced levels of energy available for sale.



DISTRIBUTION OF EXPENSES (in millions of dollars) ▲

EXPENSES

Finance Expense

Finance expense increased by $10.8 million to $253.4 million. This reflects costs associated with higher levels of long-term debt and the impact of amendments to the Energy Rate Stabilization Act in respect of the Corporation's responsibility for foreign exchange. These were partially offset by a reduction in interest expense on short-term debt and an increase in finance expense allocated to construction. In addition, these costs were further offset by an increase in interest earned on temporary investments and the effects of the improvement of the Canadian dollar over the United States dollar on the amortization of foreign exchange on long-term debt.

Operating and Administrative

Operating and administrative costs were $203.7 million or $15.8 million higher than in 1986-87. Costs associated with the operation, maintenance and administration of the utility increased by $13.5 million including approximately $1.6 million which was required to operate the thermal generation facilities due to low water flow conditions. Higher payroll taxes and unanticipated system repair costs also contributed to this increase. The $2.3 million increase in transmission line lease payments accounted for the balance.

Depreciation

Depreciation charges increased $2.4 million mainly due to additions to distribution, substation and transmission plant, and also because the Churchill transmission facilities were in service for part of the year.

Water Rentals

Effective April 1, 1987 the Province of Manitoba reduced water rental rates from $11.75 per horsepower-year to $8.96 per horsepower-year. The reduction in rates, combined with a 25% reduction in hydraulic generation resulted in water rental costs of $26.2 million, a decrease of $11.4 million from 1986-87.

Fuel and Power Purchased

Fuel and power purchased increased by 338% to $35.3 million in 1987-88. Fuel for thermal generation as well as power purchases were required to assist in mitigating the effects of the low water flow conditions and to optimize the use of generating resources.

CAPITAL EXPENDITURES AND FINANCING

Investment in Fixed Assets

Investments in fixed assets are required to meet expected growth in demand for electricity and to provide customer service. The total investment in fixed assets in 1987-88 increased by $311.0 million to $3 242.4 million. Capital expenditures of $196.1 million were incurred on the Limestone Generating Station, $22.5 million on major transmission facilities with the balance occurring for other additions, modifications and service extensions throughout the province. The amount spent to March 31, 1988 on the Limestone facility totalled $627.0 million.

Financing

For the purpose of financing capital construction, the Corporation utilizes cash from operations and external financing. In 1987-88 cash provided by operating activities was $80.9 million and external financing net of debt maturities totalled $516.5 million.

RATE INCREASE

In January 1988 the Corporation announced an average rate increase of 4.5% effective April 1, 1988.

Manitoba Hydro intends to raise rates to avoid rate shocks for its customers because of either drought or the coming into service of new generation or transmission facilities. Barring unforeseen circumstances, it is expected that these adjustments will be closely aligned with the rate of inflation.

ENERGY RATE STABILIZATION ACT

The provisions of the Energy Rate Stabilization Act were amended April 1, 1987 placing additional responsibility on Manitoba Hydro for foreign exchange fluctuations on its long-term debt. Prior to the amendment, the costs associated with Manitoba Hydro's foreign long-term debt were assumed by the Province of Manitoba and replaced with Canadian equivalent costs based on Canadian rates for similar terms at the date the debt was incurred.

Effective April 1, 1987 the Corporation assumed responsibility for all translation gains or losses on existing United States debt and on all new foreign borrowings transacted on or after April 1, 1987. Depending on foreign exchange rates at the date of maturity, the Corporation is entitled to recover up to $152.6 million of the net foreign exchange losses amortized by the Province to March 31, 1987 on United States long-term debt arranged prior to April 1, 1987.

The costs associated with foreign long-term debt in other than United States currency arranged prior to April 1, 1987 remain the responsibility of the Province of Manitoba. Had the Province not assumed this cost at April 1, 1979 the valuation of the long-term debt of the Corporation as at March 31, 1988 would have increased by approximately $330 million (1987-$286 million) when translated at year-end rates of exchange.

PUBLIC UTILITIES BOARD REVIEW

Pursuant to Section 39(4) of the Manitoba Hydro Act, the Consumers' Association of Canada (Manitoba), the Manitoba Society of Seniors Inc. and the Manitoba Industrial Power Users Group representing seven users of power applied to the Public Utilities Board for a review of the 2.8% rate increase implemented April 1, 1986. Subsequently, the 9.7% rate increase implemented April 1, 1987 and the 4.5% rate increase scheduled for April 1, 1988 were included in the application and were part of the review conducted by the Public Utilities Board in February 1988.

In a report issued on March 31, 1988 to the Minister of Energy and Mines of the Province of Manitoba, the Public Utilities Board concluded that the rate increases under review were reasonable and the target reserve level of approximately $270 million was not excessive.

The Manitoba Hydro-Electric Board

MANAGEMENT REPORT

The accompanying financial statements have been prepared by management and are presented, except for the accounting for pension costs, in accordance with generally accepted accounting principles applied on a basis consistent with the previous year. In management's opinion, the financial statements have been properly prepared within reasonable limits of materiality, incorporating all important elements and data available to June 3, 1988. The financial information presented elsewhere in the Annual Report is consistent with that in the financial statements.

G.H. Beatty
President and
Chief Executive Officer

R.B. Brennan, C.A.
Vice-President Finance and
Chief Financial Officer

AUDITORS' REPORT

To The Manitoba Hydro-Electric Board

We have examined the balance sheet of The Manitoba Hydro-Electric Board as at March 31, 1988 and the statements of operations, reserves and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Corporation as at March 31, 1988 and the results of its operations and the changes in its financial position for the year then ended in accordance with the accounting principles set out in Note 1 to the financial statements applied on a basis consistent with that of the preceding year.

Peat Marwick

Winnipeg, Canada
June 3, 1988

CHARTERED ACCOUNTANTS

Statement of Operations

FOR THE YEAR ENDED MARCH 31, 1988 (with 1987 figures for comparison)

	1988	1987
	(thousands of dollars)	
REVENUES		
Sale of power		
Manitoba	$508 345	$449 271
Extraprovincial	66 024	113 489
Other revenue	5 933	6 928
	580 302	569 688
EXPENSES		
Operating and administrative	203 728	187 941
Depreciation—plant	80 109	77 683
Water rentals	26 220	37 582
Fuel and power purchased	35 330	10 460
	345 387	313 666
Net income before finance expense	234 915	256 022
FINANCE EXPENSE (Note 2)	253 408	242 574
NET (EXPENSE) INCOME	$(18 493)	$ 13 448

The accompanying notes are an integral part of the financial statements.

The Manitoba Hydro-Electric Board

Balance Sheet

AS AT MARCH 31, 1988 (with 1987 figures for comparison)

ASSETS	1988	1987
	(thousands of dollars)	
FIXED ASSETS (Note 3)		
In service	$3 496 495	$3 395 825
Less: Accumulated depreciation	929 457	854 833
	2 567 038	2 540 992
Construction in progress	675 323	473 655
	3 242 361	3 014 647
CURRENT ASSETS		
Temporary investments	228 000	19 000
Accounts receivable	63 900	71 477
Accrued revenue and interest receivable	32 189	27 231
Materials and supplies, at average cost	32 247	30 909
	356 336	148 617
OTHER ASSETS		
Investments, at cost	1 918	1 931
Deferred expenses and advances (Note 4)	231 428	74 933
	233 346	76 864
	$3 832 043	$3 240 128

Approved on behalf of the Board:

A. Bruce Ramsay
Chairman

John S. McCallum
Vice-Chairman

LIABILITIES AND RESERVES	1988	1987
	(thousands of dollars)	
LONG-TERM DEBT (Note 5)	**$3 213 030**	$2 652 128
CURRENT LIABILITIES		
Bank balances	**3 415**	3 801
Accounts payable and accrued liabilities	**73 294**	63 559
Notes payable, due within one year	**–**	44 510
Accrued interest	**98 502**	90 442
Current portion of long-term debt (Note 5)	**229 655**	153 126
	404 866	355 438
DEFERRED LIABILITIES	**18 750**	18 843
DEFERRED CREDITS (Note 6)	**76 583**	76 412
RESERVES (Note 8)	**118 814**	137 307
	$3 832 043	$3 240 128

The accompanying notes are an integral part of the financial statements.

Statement of Reserves

FOR THE YEAR ENDED MARCH 31, 1988 (with 1987 figures for comparison)

			1988	1987
			(thousands of dollars)	
	Contingency and General	Rate Stabilization	Total	Total
BALANCE—BEGINNING OF YEAR	$137 277	$ 30	$137 307	$123 859
Net (expense) income transferred from operations	—	(18 493)	(18 493)	13 448
BALANCE—END OF YEAR	$137 277	$(18 463)	$118 814	$137 307

The accompanying notes are an integral part of the financial statements.

Statement of Changes in Financial Position

FOR THE YEAR ENDED MARCH 31, 1988 (with 1987 figures for comparison)

	1988	1987
	(thousands of dollars)	
OPERATING ACTIVITIES		
Cash from operations		
Net (expense) income	$(18 493)	$13 448
Depreciation—plant	80 109	77 683
Amortization of debt discount and expense	4 926	4 489
Amortization of foreign exchange	(3 389)	—
Other	(1 324)	446
Non-cash working capital change	19 076	15 623
Cash provided by operating activities	80 905	111 689
FINANCING ACTIVITIES		
Proceeds from long-term debt	624 245	330 713
Retirement of long-term debt	(107 704)	(92 772)
Contributions and advances in aid of construction	8 537	10 429
Decrease in notes payable	(44 510)	(107 768)
Sinking fund payment	(45 409)	(42 055)
Deferred cost of matured forward exchange contracts	7 548	10 725
Other	2 879	(4 430)
Cash provided by financing activities	445 586	104 842
INVESTING ACTIVITIES		
Additions to fixed assets	(311 009)	(237 800)
Other assets	(6 096)	57
Cash used in investing activities	(317 105)	(237 743)
INCREASE (DECREASE) IN CASH	209 386	(21 212)
CASH AT BEGINNING OF YEAR	15 199	36 411
CASH AT END OF YEAR	$224 585	$15 199

The components of cash are bank balances and temporary investments.

The accompanying notes are an integral part of the financial statements.

Notes to the Financial Statements
FOR THE YEAR ENDED MARCH 31, 1988

NOTE 1—SIGNIFICANT ACCOUNTING POLICIES

The financial statements have been prepared in accordance with generally accepted accounting principles except for the accounting for pension costs as noted in c) below.

a) Fixed Assets

Fixed assets are stated at cost which consists of contracted services, direct labour, material and expense, a proportionate share of overhead costs and interest applied at the effective rates incurred in financing construction. Finance expense is allocated to construction until a facility becomes operational or a decision is made to abandon, cancel or indefinitely defer construction. The cost of plant removed plus removal costs less salvage value is charged to accumulated depreciation.

Main facilities of major projects under construction become operational on a progressive basis. As such facilities become operational, related construction costs and a pro rata share of related common properties are transferred to plant in service. Once the transfer to plant in service is made, finance expense allocated to construction ceases and depreciation commences.

Depreciation is provided on a straight-line basis using the following service lives for major assets:

Hydro-electric generation	67 years
Thermal-electric generation	33 years
Transmission lines and stations	35-50 years
Distribution lines	30-35 years

b) Foreign Exchange:

Long-Term Debt

The translation of foreign long-term debt and the extent to which Manitoba Hydro is responsible for the resulting translation gains or losses has been established by the Energy Rate Stabilization Act. The Act, which came into force April 1, 1979 and was amended April 1, 1987, sets out the Corporation's obligations on foreign long-term debt as follows:

i) Foreign Long-Term Debt Transacted After March 31, 1987

Manitoba Hydro is responsible for the translation gains or losses associated with all foreign borrowings transacted after March 31, 1987.

Long-term debt is translated into Canadian currency at the rates of exchange prevailing at the date of the balance sheet and the unrealized exchange gains or losses are amortized on a straight-line basis over the remaining life of the related debt and together with realized exchange gains or losses are credited or charged to operations.

ii) Foreign Long-Term Debt Transacted Prior to April 1, 1987

a) Foreign debt other than United States:

The Province of Manitoba is responsible for the translation gains or losses associated with foreign debt denominated in currencies other than United States transacted prior to April 1, 1987.

The Province of Manitoba has relieved the Corporation of the costs associated with this foreign debt by replacing them with the Canadian equivalent costs based on Canadian rates for similar terms as at the date the debt was incurred. Had the Province of Manitoba not assumed the cost of this foreign debt, the valuation of the long-term debt of the Corporation as at March 31, 1988 would have been increased by approximately $330 million (1987—$551 million of which $286 million represented foreign debt other than United States) when translated at the year-end rates of exchange. The Province of Manitoba confirmed that the amount charged to the Energy Rate Stabilization Act appropriation in the current year was $83.9 million.

b) United States debt:

Effective April 1, 1987 the foreign exchange risks associated with United States debt were transferred by the Province of Manitoba to Manitoba Hydro and accordingly the Corporation assumed responsibility for the translation gains or losses associated with this debt. The Province of Manitoba retains the obligation to pay up to the amounts that have been provided in the Province's accounts in respect of United States debt to March 31, 1987. The translation gains or losses for which the Province is responsible are recorded as Deferred expenses and advances on the balance sheet. This obligation amounts to approximately $136.9 million based on rates of exchange prevailing at March 31, 1988. These amounts will be disbursed at the maturity dates of the respective United States issues dependent upon exchange rates prevailing at the maturity dates to a maximum of $152.6 million at March 31, 1988 (1987—$158.9 million).

Long-term United States debt is translated into Canadian currency at rates of exchange prevailing at the date of the balance sheet. The unrealized exchange gains or losses net of the amount amortized by the Province are amortized on a straight-line basis over the remaining life of the related debt and together with realized exchange gains or losses are credited or charged to operations.

Current Assets and Current Liabilities

Current monetary assets and liabilities denominated in foreign currencies are translated into Canadian currency at rates of exchange prevailing at the date of the balance sheet. The unrealized exchange gains or losses together with realized exchange gains or losses are credited or charged to operations.

Sinking Fund Investments

Sinking fund investments denominated in foreign currencies are translated into Canadian currency at the rates of exchange prevailing at the date of the balance sheet, except where the investments have been hedged by the Minister of Finance of the Province of Manitoba, in which case the hedged rate confirmed by the Province is used in the translation. The unrealized exchange gains or losses are amortized on a straight-line basis over the remaining life of the investment and together with realized exchange gains or losses are credited or charged to operations.

Other Transactions

Revenue and expense transactions made in foreign currencies are translated into Canadian currency at the rates of exchange prevailing at the date of the transaction, except transactions covered by monetary contracts against exchange risks are translated into Canadian dollars at the rates of exchange established by the contracts.

c) **Pensions:**

Manitoba Civil Service Superannuation Fund

In accordance with the provisions of the Manitoba Civil Service Superannuation Act, the Corporation contributes 50% of the pension disbursements made to retired employees. Such payments are charged to income as incurred and a provision is not made in the accounts to fund current or past service obligations of the Corporation to the Civil Service Superannuation Fund.

On the basis of the actuarial report as at December 31, 1986 and the formula provided by the actuary, Manitoba Hydro's unrecorded liability at December 31, 1987 as a result of the participation of employees under the Civil Service Superannuation Fund was $175 303 000 (1986 — $157 983 000).

The formula provided by the actuary allows for future increases in pension due to the cost of living and, commencing with the December 31, 1987 calculation, adjusts for the differences between actual increases in salaries and expected increases in salaries.

Manitoba Hydro Retirement Plan

The Manitoba Hydro Retirement Plan is a defined benefit plan which continues to provide benefits to employees and pensioners in respect of service prior to the date each employee entered the Manitoba Civil Service Superannuation Fund. On the basis of the actuarial report dated September, 1987 Manitoba Hydro's unrecorded liability as at July 1, 1987 was $3.2 million (1986—$4.4 million). This is being funded and charged to operations over the next 15 years. The decrease from the previous year is a result of the transfer of the pension obligations for current employees to the Manitoba Civil Service Superannuation Fund.

d) **Unamortized Debt Discount and Expense**

These costs are charged to income over the life of the respective issue.

e) **Discount on Sinking Fund Investments**

The Corporation records sinking fund investments at par value. The difference between the cost and the par value of the investments is recorded as a premium or discount and the resulting gain or loss is amortized over the remaining life of the investment or charged to investment income on disposal.

f) **Unamortized Planning Studies**

These costs are charged to income over a 15 year period.

g) **Unbilled Revenue**

Revenues are accrued in respect of electricity delivered but as yet unbilled.

NOTE 2—FINANCE EXPENSE

	1988	1987
	(thousands of dollars)	
Interest on debt	$359 941	$327 554
Amortization of foreign exchange gains or losses	(3 389)	—
Amortization of debt discount and expense	4 926	4 489
Finance expense allocated to construction	(58 297)	(45 122)
Investment income	(49 773)	(44 347)
	$253 408	$242 574

NOTE 3—FIXED ASSETS (at cost)

	1988		
	Original Cost	Accumulated Depreciation	Construction In Progress
		(thousands of dollars)	
Generation	$1 874 587	$429 364	$623 430
Transmission	221 097	67 694	1 446
Substations	720 182	186 491	16 051
Distribution	542 929	181 277	11 768
Other	137 700	64 631	22 628
	$3 496 495	$929 457	$675 323

	1987		
	Original Cost	Accumulated Depreciation	Construction In Progress
		(thousands of dollars)	
Generation	$1 863 729	$401 276	$428 401
Transmission	206 398	63 241	7 748
Substations	694 835	165 595	16 170
Distribution	504 217	167 081	8 380
Other	126 646	57 640	12 956
	$3 395 825	$854 833	$473 655

NOTE 4—DEFERRED EXPENSES AND ADVANCES

	1988	1987
		(thousands of dollars)
Unamortized bond discount and expense	$ 30 338	$27 469
Unamortized planning study costs	32 096	29 425
Unamortized foreign exchange gains or losses	20 866	—
Amounts receivable from the Province under E.R.S.A.	136 941	—
Deferred cost of matured forward exchange contracts	—	7 548
Advance to the Northern Flood Committee Inc. (Note 7b)	5 299	5 090
Other	5 838	5 401
	$231 428	$74 933

NOTE 5—LONG-TERM DEBT

Manitoba Hydro's long-term debt is guaranteed by the Province of Manitoba.

As provided by The Manitoba Hydro Act, the Corporation pays an annual sinking fund installment to the Minister of Finance of the Province of Manitoba of not less than 1% of the principal amount of the outstanding long-term debt on the preceding March 31, and 4% of the balance in the sinking fund at such date. Such installments would provide for the full retirement of a debt obligation only if the obligation was outstanding for 41 years. Income earned on sinking fund investments is remitted to the Corporation and is included with investment income for the year.

For the purpose of financing capital construction expenditures and refunding debt during the year, the Corporation arranged advances in the principal amount of $632.0 million from the Province of Manitoba as follows:

- $257.0 million (U.S. $200.0 million) redeemable at the option of the bondholder on January 15, 1998 (due January 15, 2018), with interest at 9.125%.
- $375.0 million redeemable at the option of the bondholder on September 3, 1992 and September 3, 1997 (due September 3, 2002), with interest at 9.625% (9.750% for years 6 to 15, if applicable).

Long-Term Debt:	1988	1987
		(thousands of dollars)
Total long-term debt outstanding –		
The Manitoba Hydro-Electric Board Bonds	$1 310 489	$1 194 080
Advances from the Province of Manitoba represented by debenture debt of the Province	2 396 192	1 869 728
Advances from the Province of Manitoba under a loan agreement between the Province and the Government of Canada	114 668	116 547
	3 821 349	3 180 355
Less: Sinking fund on deposit with the Minister of Finance	378 664	375 101
	3 442 685	2 805 254
Less: Long-term debt maturing within one year – Maturities net of sinking fund plus annual sinking fund installment...	229 655	153 126
	$3 213 030	$2 652 128

Debt Maturities:

			Cash Requirements		
			(thousands of dollars)		
March 31	Principal Amount of Maturities	Weighted Average Coupon Rate	Maturities Net of Sinking Fund	Annual Sinking Fund Installments	Total
1989	$ 201 708		$ 179 305	$ 50 350	$ 229 655
1990	285 092		257 056	49 451	306 507
1991	281 814		252 374	47 522	299 896
1992	198 789		160 420	45 252	205 672
1993	758 748		661 322	43 557	704 879
	1 726 151	9.53	1 510 477	236 132	1 746 609
1994-1998	1 153 250	7.70	920 241	145 015	1 065 256
1999-2003	258 798	8.98	164 205	89 066	253 271
2004-2008	675 148	8.99	365 925	45 286	411 211
2009	8 002	9.20	3 176	246	3 422
	$3 821 349		$2 964 024	$515 745	$3 479 769

Long-term debt repayments to be made in Canadian dollars and in foreign currencies, with their Canadian dollar equivalents are shown in the following table:

	1989 to 1993	1994 to 2009	Total	1988	1987
	(in thousands of dollars)			(in thousands of Canadian dollars)	
Canadian dollars	$1 130 585	$ 280 360	$1 410 945	$1 410 945	$1 140 124
Foreign currencies:					
United States dollars at rates of exchange prevailing at the Balance Sheet date*	309 588	1 212 700	1 522 288	1 878 655	1 494 123
Other foreign currencies in Canadian dollars as established by the Energy Rate Stabilization Act	213 505	318 244	531 749	531 749	546 108
				$3 821 349	$3 180 355

*A portion of translation gains or losses on U.S. $1 322 288 are the responsibility of the Province of Manitoba (see Note 1b).

NOTE 6—DEFERRED CREDITS

	1988	1987
	(thousands of dollars)	
Non-refundable capital contributions	$60 287	$54 969
Unamortized discount on purchase of sinking fund investments	12 982	15 613
Unamortized foreign exchange on sinking fund investments	2 652	5 199
Other	662	631
	$76 583	$76 412

NOTE 7—COMMITMENTS

a) Lease Commitments

In accordance with a lease agreement entered into during 1966 between the Governments of Canada and Manitoba, direct current transmission facilities were constructed between the Kettle Generating Station and Winnipeg. The agreement provides for repayment by the Corporation of the capital cost with accrued interest at 5.625% over a term of forty-five years in accordance with a repayment schedule requiring substantially smaller payments during the earlier years. The schedule provides for payment of $20 000 000 for the year ended March 31, 1988 (1987 – $17 500 000) and for payment of $22 500 000 for 1989. Payments for the fiscal years 1990 to 2019 will be calculated as the equal annual payment required to amortize the outstanding balance over thirty years at 5.625%. The unpaid balance of principal plus accrued interest for transmission facilities amounted to approximately $370 344 000 as at March 31, 1988 (1987—$369 479 000).

The Corporation's policy is to charge the lease payments to operations in the period in which they become payable. This policy is consistent with the intent of the lease agreement of providing economic relief to ratepayers during the early years of the Nelson River development. This is evident when compared with a calculation of a charge in accordance with the C.I.C.A. recommendation on accounting for capital leases entered into subsequent to January 1, 1979, which indicates that an additional amount of approximately $5.7 million would have been charged to operations for the year and an additional net asset amount of approximately $173.3 million would have been recorded relating to the transmission facilities.

b) Mitigation—Northern Flood Agreement

Manitoba Hydro is party to an agreement with the Government of Canada, the Province of Manitoba and the Northern Flood Committee Inc., which includes compensation and mitigation for the impact of the Churchill River Diversion and Lake Winnipeg Regulation projects. The total spent on compenssation and mitigation during the year was $4.7 million (1986-87 – $1.7 million). The total amount paid to date under the Northern Flood Agreement is $31.6 million as at March 31, 1988. A total of 135 claims involving Manitoba Hydro have been filed to date with the Arbitrator with 73 claims having been settled. Of the 62 claims outstanding, Manitoba Hydro is not able to precisely determine the contingent liability but has estimated it to be in excess of $40.0 million.

In addition to the above, in 1986-87 Manitoba Hydro advanced $5.0 million to the Northern Flood Committee Inc. to provide funds to the Indian Bands for their use in housing upgrading. This advance, adjusted for the time value of the advance, will reduce the amounts payable for future adjudicated claims.

c) Construction Commitments

Construction on Limestone Generating Station has been committed to provide for first power in 1990-91. The current forecasted cost of the new generating station is $1 668 million, of which costs of $627 million have been incurred to March 31, 1988.

Other outstanding commitments, principally for construction, were approximately $112 262 000 (1986-87—$43 879 000).

NOTE 8—RESERVES

The following reserves are maintained by the Corporation:

Contingency and General Reserve

An amount as stipulated by the Manitoba Hydro-Electric Board may be transferred annually to this reserve. No transfer was made for the 1987-88 fiscal year (1986-87—$13 448 000).

Rate Stabilization Reserve

The net (expense) income after provision for the contingency and general reserve is transferred annually to this reserve.

NOTE 9—COMPARATIVE FIGURES

Where appropriate, comparative figures for 1987 have been reclassified in order to conform to the presentation adopted in 1988.

FINANCIAL STATISTICS

(thousands of dollars)

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
STATEMENT OF OPERATIONS										
Revenues										
Residential and Farm	209 528	190 130	185 567	168 977	146 054	126 684	123 629	115 364	117 161	105 999
Power, General Service and Misc.	255 110	223 726	214 386	198 692	174 707	151 203	154 579	135 064	132 762	118 795
Winnipeg Hydro (Cost Sharing Agreement)	43 707	35 415	32 984	29 826	29 388	27 180	33 146	26 682	25 435	18 865
Extraprovincial	66 024	113 489	112 846	103 151	105 654	105 411	72 384	81 965	95 965	82 055
Other Revenue	5 933	6 928	6 820	5 768	5 684	4 217	3 865	2 768	3 022	2 817
	580 302	569 688	552 603	506 414	461 497	414 695	387 603	361 843	374 345	328 531
Expenses										
Operating and Administrative	203 728	187 941	173 866	157 753	148 975	138 503	120 071	105 442	88 981	77 588
Depreciation—Plant	80 109	77 683	74 470	69 339	66 294	61 718	60 127	57 703	53 313	43 963
Water Rentals	26 220	37 582	17 850	11 287	11 760	11 575	9 342	8 956	4 765	3 937
Fuel and Power Purchased	35 330	10 460	9 399	14 392	9 289	8 192	16 711	9 973	5 502	3 985
Finance Expense	253 408	242 574	246 753	242 509	228 853	213 836	205 544	195 947	176 091	153 395
	598 795	556 240	522 338	495 280	465 171	433 824	411 795	378 111	328 742	282 868
Net (Expense) Income Transferred (From) To Reserves	(18 493)	13 448	30 265	11 134	(3 674)	(19 129)	(24 192)	(16 268)	45 603	45 663
BALANCE SHEET										
Assets										
Fixed Assets in Service	3 496 495	3 395 825	3 314 378	3 173 197	3 030 182	2 945 435	2 891 325	2 808 838	2 650 268	2 376 777
Less: Accumulated Depreciation	929 457	854 833	783 776	713 619	647 001	584 534	524 720	469 158	413 720	363 462
Construction in Progress	675 323	473 655	326 005	270 947	301 641	272 013	202 544	188 792	244 175	309 277
Current and Other Assets	589 682	225 481	272 648	193 058	249 270	251 561	156 665	121 269	131 528	179 590
	3 832 043	3 240 128	3 129 255	2 923 583	2 934 092	2 884 475	2 725 814	2 649 841	2 621 251	2 592 182
Liabilities and Reserves										
Long-Term Debt—Net	3 213 030	2 652 128	2 523 786	2 213 115	2 404 657	2 367 561	2 297 887	2 230 803	2 221 647	2 298 726
Current and Other	500 199	450 693	481 610	616 874	451 082	434 887	326 771	293 690	257 988	197 443
Reserves	118 814	137 307	123 859	93 594	78 353	82 027	101 156	125 348	141 616	96 013
	3 832 043	3 240 128	3 129 255	2 923 583	2 934 092	2 884 475	2 725 814	2 649 841	2 621 251	2 592 182
STATEMENT OF CHANGES IN FINANCIAL POSITION										
Operating Activities										
Cash from Operations	61 829	96 066	107 838	83 839	65 124	48 095	41 844	47 251	104 442	93 993
Non-Cash Working Capital Increase (Decrease)	19 076	15 623	(5 099)	(15 013)	10 384	7 819	(3 562)	1 017	(15 011)	(14 797)
From Operating Activities	80 905	111 689	102 739	68 826	75 508	55 914	36 282	48 268	89 431	79 196
Financing Activities										
Proceeds from Long-Term Debt—Net	624 245	330 713	380 014	61 002	198 234	273 963	175 393	109 560	1 961	180 038
Retirement of Long-Term Debt—Net	(107 704)	(92 772)	(170 671)	(84 091)	(175 542)	(75 383)	(67 266)	(51 425)	(30 717)	(34 369)
Sinking Fund Payment	(45 409)	(42 055)	(39 698)	(38 755)	(37 636)	(35 514)	(33 640)	(32 055)	(31 463)	(29 360)
Other	(25 546)	(91 044)	(19 539)	29 868	37 944	2 563	31 782	10 520	56 680	8 070
From (To) Financing Activities	445 586	104 842	150 106	(31 976)	23 000	165 629	106 268	36 600	(3 530)	133 379
Investing Activities										
Additions to Fixed Assets	(311 009)	(237 800)	(202 039)	(122 640)	(152 283)	(128 693)	(103 954)	(99 634)	(132 703)	(199 625)
Other Assets	(6 096)	57	12	14	3 320	22	12	965	374	158
To Investing Activities	(317 105)	(237 743)	(202 027)	(122 626)	(148 963)	(128 671)	(103 942)	(98 669)	(132 329)	(199 467)
Increase (Decrease) In Cash	209 386	(21 212)	50 818	(45 776)	(50 455)	92 872	38 609	(13 801)	(46 428)	13 108

OPERATING STATISTICS

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
INTEGRATED SYSTEM – MANITOBA HYDRO AND WINNIPEG HYDRO										
Installed Winter Capability (000 kW)	4 063	4 088	4 091	4 091	4 091	4 091	4 091	4 091	4 091	3 678
Manitoba Firm Peak Demand (000 kW)*	3 356	3 011	2 941	2 952	2 889	2 543	2 735	2 575	2 519	2 419
Percentage Change	+11.5	+2.4	-0.4	+2.2	+13.6	-7.0	+6.2	+2.2	+4.1	-1.1
Energy Supplied (000 000 kW.h)										
Manitoba Hydro Generation	18 148	22 957	22 226	20 261	20 967	20 538	17 372	17 975	19 690	17 600
Winnipeg Hydro Generation	710	1 108	1 085	1 066	1 042	1 158	813	848	1 111	1 153
Energy Purchased										
Hudson Bay Mining & Smelting	0	0	0	0	0	0	0	38	28	4
Ontario	0	0	0	0	0	0	0	0	0	0
Saskatchewan	84	115	93	61	64	71	179	15	1	1
United States	1 070	0	17	20	7	43	297	203	0	4
Total Generated and Purchased	20 012	24 180	23 421	21 408	22 080	21 810	18 661	19 079	20 830	18 762
Firm Energy Supplied for Manitoba Integrated System (000 000 kW.h)*	16 260	15 498	15 366	14 993	14 388	13 260	13 527	12 529	12 797	12 483
Isolated Systems Generated and Purchased (000 000 kW.h)	20	46	46	47	48	47	46	47	50	53
Total Integrated & Isolated Systems (000 000 kW.h)	16 280	15 544	15 412	15 040	14 436	13 307	13 573	12 576	12 847	12 536
Percentage Change	+4.7	+0.9	+2.5	+4.2	+8.5	-2.0	+7.9	-2.1	+2.5	+4.3
MANITOBA HYDRO SYSTEM										
Energy Sold (000 000 kW.h)										
Residential and Farm	4 540	4 749	4 751	4 520	4 205	3 922	3 765	3 536	3 600	3 616
Power, General Service and Misc.	7 355	6 911	6 677	6 590	6 263	5 726	6 068	5 587	5 585	5 328
Net Transfer to Winnipeg Hydro	1 679	1 273	1 190	1 154	1 143	930	1 245	1 163	977	918
Extraprovincial										
Ontario	1 004	817	917	795	1 153	850	1 089	1 616	1 787	1 439
Saskatchewan	104	10	222	233	269	231	342	968	1 378	530
United States	2 308	7 004	6 153	4 739	5 409	6 533	3 150	3 299	3 966	3 718
Number of Customers										
Residential and Farm	320 435	313 499	305 700	299 611	293 620	288 076	285 175	281 479	279 080	273 779
Power, General Service and Misc.	42 009	41 315	41 019	40 547	39 965	39 766	39 804	39 629	39 129	38 840
Peak Number of Employees	4 222	4 142	3 853	3 805	3 778	3 859	3 850	3 899	4 164	4 411

**Corrected by System Losses applicable to Extraprovincial Sales*

Manitoba Hydro Generating Stations and Capabilities

As At March 31, 1988 (Normal Winter Capability)

INTERCONNECTED CAPABILITIES

	STATION	LOCATION	No. of Units	Winter Capability in Kilowatts
HYDRAULIC:	Great Falls	Winnipeg River	6	132 000
	Seven Sisters	Winnipeg River	6	150 000
	Pine Falls	Winnipeg River	6	82 000
	McArthur Falls	Winnipeg River	8	56 000
	Grand Rapids	Saskatchewan River	4	472 000
	Kelsey	Nelson River	7	224 000
	Kettle	Nelson River	12	1 272 000
	Jenpeg	Nelson River	6	126 000
	Long Spruce	Nelson River	10	980 000
	Laurie River (2)	Laurie River	3	10 000
	TOTAL HYDRAULIC			3 504 000
THERMAL:	Brandon		5	237 000
	Selkirk		2	132 000
	TOTAL THERMAL			369 000
	TOTAL			**3 873 000**

ISOLATED CAPABILITIES

DIESEL:	Brochet	650
	Garden Hill	1 600
	Gods Lake Narrows	1 200
	Gods River	525
	Lac Brochet	525
	Oxford House	1 600
	Pikwitonei	350
	Red Sucker Lake	650
	St. Theresa	1 475
	Shamattawa	825
	Tadoule Lake	600
	Thicket Portage	300
	Waasagomach	1 100
	TOTAL	11 400
TOTAL GENERATING CAPABILITY		**3 884 400**